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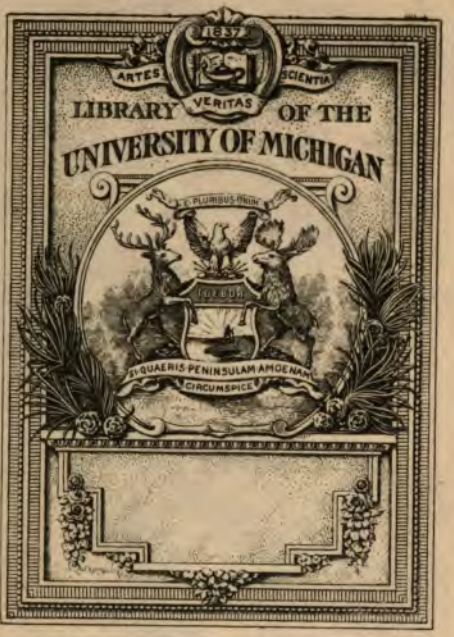
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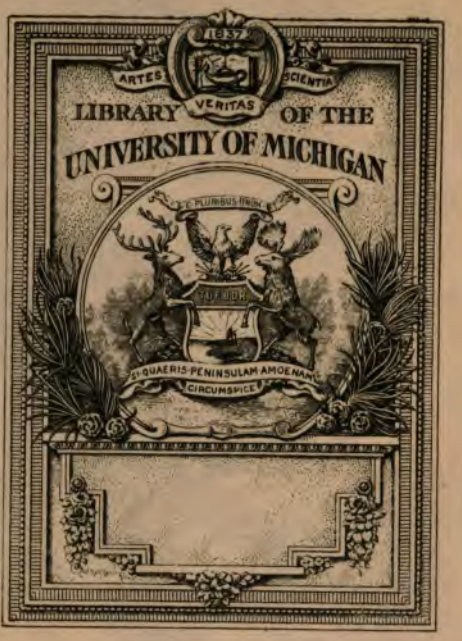
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CONTENTS

OF

VOL. XV.—PART I.

Page

I. A pathological Inquiry into the Secondary Effects of Inflammation of the Veins, by James M. Arnott, Surgeon. 1

II. A Contribution to the Pathology of Phlegmasia Dolens, by Robert Lee, M.D. Physician-Accoucheur to the British Lying-in Hospital..... 132

Appendix, containing cases and observations for the illustration of the pathology of Phlegmasia Dolens, by Dr. Robert Lee 145

III. Analysis of a quantity of fluid drawn off from a Hydrocele of some years' standing, by I. Bostock, M.D. F.R.S..... 154

IV. On the use of the Subcarbonate of Iron in Tetanus, by John Elliotson, M.D. Cantab. F.R.S. Fellow of the Royal College of Physicians, and Physician to and Lecturer on the Practice of Medicine at St. Thomas's Hospital..... 161

V. An Account of a Case of Aneurism by Anastomosis of the Forehead, treated by the application of Ligatures, by B. C. Brodie, F.R.S. Surgeon to the King, and Surgeon to St. George's Hospital 177

Page

VI. Two Cases of Fracture of the Thigh-bone, taking place without any violence, in which a diseased state of the bones appears to have been the predisposing cause of the fracture, and concurring with cancer in the breasts in both patients, by T. Salter, Esq. F.L.S. Surgeon, Poole, Dorsetshire 186

VII. Observations on the Local Diseases termed Malignant, by Benjamin Travers, F.R.S. Surgeon to St. Thomas's Hospital, and President of the Society.
Part I. 195
Part II. 230

Explanation of the Plates. 263

ERRATA.

At page 55, line 8, for "has" read "have."
62, line 5, for "abscess of" read "abscess by."
65, line 6, for "from" read "of."

A PATHOLOGICAL INQUIRY

INTO THE

SECONDARY EFFECTS

OF

INFLAMMATION OF THE VEINS;

BY JAMES M. ARNOTT, SURGEON.

Read October 14th, and 28th, 1828.

A DEGREE of doubt seems still to prevail as to the cause of the alarming constitutional affection frequently attendant on Inflammation of the Veins, and much obscurity unquestionably exists, with regard to the origin of those abscesses and inflammations in distant parts which sometimes occur after injuries. An attempt to remove the one, and to dispel a portion of the other, may not therefore be considered as altogether unworthy of notice.

My attention was more particularly called to this subject, by some occurrences which marked the course and termination of three fatal cases of inflammation of the veins after venesection, which I had an opportunity of observing. In one of these,

a deposition of pus, without signs of previous inflammation, took place under the skin of the opposite fore-arm; in another destructive inflammation of the knee-joint, with a deposition of pus into the cellular substance of the thigh; and in the third, collections of matter at several points in the substance of the lungs; while in all three, the inflammation of the vein did not extend to the heart. These circumstances suggested inferences as to the cause and nature of the constitutional affection in cases of Phlebitis, and views with regard to the origin of abscesses in remote situations arising from injuries, which led to an examination of the evidence on both these subjects, to be found in the writings and observations of others. The results of this investigation I submit to the Society.

PART I.

Mr. Hunter*, in his original essay on inflammation of the internal coats of veins, threw out two suggestions as to the manner in which this affection might influence the constitution. He remarks that, "in all cases where inflammation of veins runs high, or extends itself considerably, *it is to be expected* that the whole system will be affected. For the most part, the same kind of

* Trans. of a Soc. for the Improvement of Med. and Chir. Knowledge, Vol. I. London, 1793. p. 18.

affection takes place, which arises from other inflammations, with this exception, that where no adhesions of the sides of the vein are formed, or, where such adhesions are incomplete, pus, passing into the circulation, may add to the general disorder and even render it fatal." And, after observing that he had frequently seen the jugular vein of horses inflamed through its whole length, the inflammation carried along the vein quite into the chest, and that many horses die of the disease, Mr. H. proceeds, "But what is the particular circumstance which occasions their death, I have not been able to determine; it may either be, that the inflammation extends itself to the heart, or, that the matter secreted from the inside of the vein, passes along that tube in considerable quantity to the heart, and mixes with the blood."

Mr. Abernethy* had not seen a case where the vein evidently suppurated, and upon the effects of such an occurrence, he merely transcribes the opinions of Mr. Hunter, asserting, that if abscesses form, the matter of these may sometimes mix itself with the circulating fluid, and produce dangerous consequences. But, what Mr. H. considered as of *possible*, Mr. A. assumed as of *actual* occurrence when he stated, that where inflammation of the venous tube is extensive, it is probable that much sympathetic fever will ensue, not

* Essay on the occasional Ill Consequences of Venesection. Surgical Works, Vol. II. London, 1823. p. 150.

merely from the excitement which inflammation usually produces, but also, "*because* irritation will be continued along the membranous lining of the vein to the heart."

Mr. Hodgson*, likewise affirms, that the inflammation extends, "in some instances even to the membrane which lines the cavity of the heart," and he describes the symptoms which attend the disease as having a striking resemblance to those of typhus fever. Mr. H. considers that the constitutional irritation, being accompanied by symptoms of greater debility than acute inflammation in general, may probably arise from the extent of the inflamed surface, but, that it is not unlikely it may be an effect produced upon the nervous system by the pus which is secreted into the vessel, being mixed with the circulating blood†.

Mr. Travers‡ draws a distinction between the cases where the inflammation of the vein terminates in the formation of pus, and where it terminates in the deposition of adhesive matter or lymph; the latter extending to the trunks of the system, and sometimes, it is said, reaching the heart. He observes there is a marked difference

* On Diseases of Arteries and Veins. London, 1815. p. 511.

† Ibid. p. 518.

‡ Essay on Wounds and Ligatures of Veins, in Cooper and Travers's Surgical Essays. Vol. I. 3rd edition. London, 1818. p. 286.

in the symptoms accompanying these states; the first is a protracted irritation, producing hectic, and ending in exhaustion, the second is a typhoid fever, which speedily producing delirium, terminates within a few days. The former cases, although always dangerous, are sometimes recovered; the latter he imagines, never. Mr. T. then proceeds, "there have been many conjectures respecting the cause of the fatal termination of these cases, at which I confess I feel surprised; among others, the inflammations by extension of the heart, or the membranes of the brain, and the conveyance of pus into the circulation, have been mentioned. Not to insist on the innocuous quality of pus, it should be observed, that the most rapidly destructive inflammation is that which has the true adhesive progress in which no pus is secreted. But, if we consider the importance of the veins in the economy, the extent of surface which the collective areæ of the venous trunks afford, larger, I imagine, than any of the shut sacs of the body, and the diffused and disorganizing character of the inflammation, we can surely be at no loss to account for the disturbance of the system. It is an error to suppose that any quicker sympathy exists between the constitution and the venous, than the arterial or absorbent system. I say this, because I have observed something like that superstitious alarm which is excited by events that we do not expect, and cannot explain, has been produced by the fatal

catalogue of tied veins, and a comparison of this with the generally successful cases of tied arteries. All the mystery of veins is, as I have attempted to show, that they are indisposed to inflame, but when excited, inflame by continuity, and therefore it is that the constitution sympathizes so deeply."

Mr. Carmichael*, in one of the cases which he describes, considers it probable that the inflammation extended "to the cava, and perhaps to the heart," but of the symptoms generally, he observes, that they "were no doubt owing to the formation of matter, and the influence which it must produce on the general system when mixed with the mass of blood."†

M. Breschet‡, in alluding to the febrile symptoms accompanying Phlebitis, remarks, that in several subjects who had died of Typhus, he had found evident traces of inflammation of veins within the cranium. But, whilst he seems to regard Typhus as a series of symptoms dependent on inflammation of the veins, he does not show how the primary local affection in cases of Phlebitis produces the constitutional.

* Observations on Varix and Venous Inflammation, in the Transactions of the King's and Queen's College of Physicians in Ireland. Vol. II. Dublin, 1818. p. 355.

† Ibid. p. 368.

‡ De l' Inflammation des Veines, ou de la Phlébite, Journal Complémentaire du Dictionnaire des Sciences Médicales. Tome II. p. 325. Tome III. p. 317. Paris, 1819.

M. Bouillaud * ascribes the typhoid symptoms to the presence of pus in the system, and refers to the experiments of Baglivi, of Majendie, and of Gaspard, as having produced apparently analogous effects in animals, by the injection of acrid and putrid matter into their veins.

M. Ribes †, apparently the first, threw out the opinion which has since obtained partial credit, that the veins and venous blood are primarily affected in the *fièvres adynamiques* ‡. More recently, he has described the morbid appearances presented by the veins when inflamed, and the circumstances under which they become so §; but, although the pathological conditions of the different organs of the body in cases of Phlebitis, are likewise, though briefly, narrated, M. Ribes does not trace the connexion between the local and constitutional affections.

Mr. Guthrie, who observed the veins inflamed after amputation, in connection with, or, as he believes, as a consequence of a diseased condi-

* Recherches Cliniques pour servir à l'Histoire de la Phlébite. Revue Médicale. Juin 1825. P. 424, 5.

† Exposé Sommaire de quelques Recherches Anatomiques, Physiologiques, et Pathologiques, faites par F. Ribes. Mémoires de la Société Médicale d'Emulation. Tome 8. Paris, 1817. P. 624.

‡ Id. p. 628.

§ Exposé Succinct des Recherches faites sur la Phlébite, Revue Médicale. Juillet, 1825. P. 1.

tion of the stump, assumes * that inflammation of the veins is of two kinds, viz. the adhesive or healthy, and the irritative, erysipelatous, or unhealthy. The first kind is represented as seldom observed, but when observed, is usually cured; the latter is almost as invariably fatal, but in what manner, he offers no explanation.

In the third volume of his lectures by Tyrrell, published last year, Sir Astley Cooper † asserts, that sometimes life is destroyed by inflammation extending to the large vein and to the heart. He also remarks ‡, that if the matter resulting from the suppurative inflammation does not point, but remains in the veins, it produces excessive constitutional irritation, which destroys life.

From the preceding narrative it appears, that although the violence and fatality of the constitutional affection arising from Phlebitis have been equally recognized, several explanations are given of the circumstances upon which these more immediately depend; and that of the opinions so expressed, even those which have most probability in their favour, rest on somewhat uncertain grounds. The chief cause of this uncertainty has

* A Treatise on Gun-shot Wounds, &c. 3d Edit. 1827. p. 299.

† Lectures on Surgery, by Tyrrell. Vol. III. London, 1827. P. 205.

‡ Ib. P. 206.

been, the want of accurate observations of the symptoms and morbid appearances met with in cases of this disease, a want, which, since the attention of the profession has been called to the subject, more particularly by the writings of Mr. Hodgson and Mr. Travers, no longer exists; the doubt therefore that still remains is rather attributable to the question not having received that careful consideration which is requisite, in order to arrive at a satisfactory conclusion, than to any deficiency of materials to enable us to do so. In attempting this on the present occasion, I shall first offer a succinct account of several cases of Phlebitis, where death was clearly referable to its occurrence, and the bodies were subsequently examined, so as fairly to represent the circumstances which characterized the origin, course, and termination of the constitutional affection, and having done so, I shall proceed to draw such conclusions, accompanied by remarks, as the facts seem to justify.

FATAL CASES OF INFLAMMATION OF VEINS.

The first three cases, of which I daily witnessed the progress, occurred in St. Bartholomew's Hospital, under the care of Mr. Lawrence, to whose kindness I am not only indebted for the opportunity of observing them, but also, for having enabled me to give the following account. The other instances are derived from various sources: in selecting them, I have restricted myself to cases of

Phlebitis arising from wounds, the injury being either slight, or where extensive the connexion between the inflammation of the vein as primary affection, and the constitutional as secondary, being too obvious to be mistaken. The details of treatment unimportant for the purposes of the pathological investigation are omitted.

Case 1, *after Venesection.*—Sophia Brancher, twenty-five years of age, was bled on the 27th of November 1826, from the left median-basilick vein, on account of an unimportant accident met with the preceding day.—On the 28th she resumed her occupation of weaving; towards evening, the arm felt stiff and painful.—On the 29th she continued at her work, and all the symptoms became aggravated. The two following days she was incapable of using the arm, which she poulticed, and feeling very unwell, she came into the hospital on the 2d of December.

The inside of the arm, for some distance above and below the elbow joint, is swollen, red, and very painful on pressure. A small crust covers the wound made in venesection; the face is pale and anxious, skin hot and dry; pulse full and 120; tongue white and moist, great thirst, no appetite; bowels open from an aperient taken yesterday. Sixteen ounces of blood taken from the opposite arm induced fainting; it was highly cupped and buffed.

3d. Passed a restless night, frequent moaning, respiration hurried; skin hot, pulse small and 120. Bowels open, complains of pain in the abdomen, increased on pressure, or by a deep inspiration. 5th. The pain in the epigastrium has been removed by the application of leeches, in other respects continues much the same.—Arm rather easier, the inflammation extends towards the axilla; tongue white on the sides, light brown and dry in the middle.

7th. Arm less inflamed, the wound in the vein discharges rather copiously; the pus, which is of the ordinary consistence, is sometimes of the usual colour, and sometimes red from the admixture of blood; a considerable quantity of this red matter issued from the vein to-day, on pressure in the neighbourhood of the wound. Continues very restless during the night, and without sleep. The face is very pale and anxious; pulse small and 104; tongue furred and dry in the middle; bowels open. Yesterday and to-day she has complained of pains over the whole body, which are particularly severe in the extremities. She suffers more from them than from the arm.

8th. Continued restlessness and want of sleep, countenance flushed and anxious; respiration hurried; severe pains in the limbs, particularly in the calves of the legs; the redness, heat, and tension of the left fore-arm rather increased; the purulent

discharge from the vein continues; tongue less dry.—9th. A very restless night, countenance more anxious and sallow. Arm better; tongue rather dry; considerable thirst; pulse full, soft, and 100; bowels open. In the evening, the skin warm but moist; the pain in the limbs diminished. 10th. Had some refreshing sleep in the night, and is in all respects better to-day; the swelling and pain in the arm are nearly gone; pus still flows from the orifice in the vein. 11th. Slept a little in the evening of yesterday, but was restless during the night, and she complains much of the pains in her limbs. Her appearance is improved; respiration nearly natural, pulse weak, and 108. Tongue dry, and a little brown in the middle; thirst diminished, and bowels purged. Left arm nearly of its natural size. In the evening, more pale and anxious than in the morning, but the pains in the limbs are much diminished. The skin is cold, respiration laborious, (being performed with considerable effort,) and thirty in a minute. Pulse small, weak, and 104. Bowels continue purged, and the abdomen is painful on pressure.

12th. Has passed a better night, having slept for five hours; the countenance is much altered and pale. Matter has formed under the skin of the right fore-arm without redness, five ounces of good pus evacuated by puncture. Painful swellings of the left knee from effusion into the articular cavity.

13th. Has passed a very bad night, and is much worse to-day, the pallid and sunk countenance, feeble pulse, and other symptoms indicating clearly the near approach of dissolution. 14th. Died early in the morning.

The husband chose to be present at the examination after death, to restrict it in point of time and extent: it was therefore hurried and imperfect. The following points were, however, ascertained. Inflammatory condensation of the cellular tissue of the fore-arm, and arm in the inflamed part. A chain of small suppurations in the course of the blood-vessels, with white healthy pus from the elbow to the axilla. The axillary and subclavian veins, the superior cava, and the lining of the heart were quite natural. No diseased appearances in the chest; the liver light coloured, and beginning to assume the yellow appearance produced by indulgence in spirits. The other abdominal viscera were sound.

The knee was not allowed to be examined.

Case 2, *after Venesection.*—John Carr, forty-seven years of age. Having strained his back, was bled on the first of January 1827, and returned to the hospital on the following day, in consequence of pain in the wound, and inflammation of the surrounding cellular tissue. Face pale and

anxious, pain in the chest on taking a full inspiration; pulse frequent, full, and hard.

3d. Passed a restless night, with very little sleep. Arm easier; pulse full, hard, and 116: tongue white, bowels open. Twenty ounces of blood being taken from the arm, he fainted during the bleeding; the blood drawn much buffed, and the crassamentum very tough. 4th. Seems rather better, but the pulse being full, hard, and upwards of 100, he was bled ad deliquium, faintness being produced when twenty ounces had flowed; the blood was highly cupped and buffed, and the serum had a milky appearance: in the evening he breathed easier. 5th. Has passed a good night, and says he is much better: the symptoms connected with the thoracic affection are nearly gone. Great thirst. Bowels repeatedly open during the night.

6th. Much the same as yesterday. The arm is more swollen, and some pus is discharged from the orifice of the vein, on pressure in the course of the vessel. The purging continues. In the evening he had several shivering fits.

7th. Some sleep during the night, countenance pale and anxious. He expresses a feeling of great weakness, and is extremely irritable, but in good spirits. Pulse small, soft, and 140; tongue slightly

brown and dry, great thirst; no appetite. 10th. Has continued nearly in the same state, with strongly marked restlessness and irritability. Pale and sallow countenance. The inflammation of the arm, in the course of the vein, is diminished, but the discharge from the orifice of the vessel is increased, and is now mixed with bubbles of air, which seems to gain admission when the elbow is extended. Respiration is laborious, and 32; but a deep inspiration gives no pain. Pulse small and 108; great thirst.

13th. The inflammation increasing towards the axilla, whilst it is much diminished at the bend of the arm. He remains low and very irritable. 18th. A soft tumour appears at the inner side of the insertion of the deltoid muscle, and a fluctuation was felt; it was opened, and about two ounces of thick, tenacious, yellow, and very fetid purulent matter were discharged. He continues low and irritable. 20th. A good night, but this morning is very restless and irritable. He complains of pain in the chest. Respiration is heard all over the chest with the stethoscope, and the heart is heard over a larger space than usual. Pulse small, soft, and 104: bowels open, no appetite, the tongue has been occasionally rather dry, but never much furred, and frequently clean and moist: the wound in the vein does not discharge pus, and the abscess in the axilla is healing up.

25th. Last night, after taking some cold drink, he was attacked with a severe shivering fit, and during the night and this morning, he has had several more. He is very low, and complains much of weakness. The pulse is low and less frequent: bowels open. Cough diminished, but accompanied with copious purulent expectoration. The arm is of its natural size, and there is no discharge from the wound in the vein. He will not take any medicine.

30th. Last night was delirious, so that it was necessary to confine him. This morning there is great difficulty of breathing, and the face is pale and cadaverous. The irritability is extreme. The sonorous breathing was increased at times so as to threaten suffocation, which was accompanied with a peculiar cry. He soon became exhausted, and remained still for some time, when it was again repeated. These attacks became more frequent until he expired, at six this morning.

The body was examined six hours after death.—An incision was made from the clavicle to the middle of the fore-arm, so as to divide the skin, which was dissected back. A small abscess, with a smooth secreting surface, was found between the basilick and median basilick veins, and opposite the external wound. Both these veins were impervious to blood, and were reduced to a cord-

like substance. On tracing the basilick-vein upwards, it was found to terminate in an oblong shaped abscess about two inches above the original wound in the vein: it had a thick and irregular smooth surface, and the surrounding cellular tissue was very dense; the basilick proceeding from the abscess was lined with an irregular false membrane for about two inches, when it terminated in a quantity of fibrin, which filled up the cavity of the vein. Immediately above this, the cephalick and several smaller veins terminated. The internal surface of the heart and of the large veins appeared healthy, and were filled with recently coagulated blood.

The pericardium contained a few ounces of a yellowish serum mixed with portions of lymph. On the surface of the heart several large white spots appeared. There were extensive adhesions between the pleura costalis and pulmonalis. The lungs were healthy, excepting several points where vomicæ had formed; a very large one was situated in the posterior part of the right lobe.—The bronchiæ were filled with mucus mixed with air.

The abdominal viscera were healthy.

The arachnoid membrane, covering the hemispheres of the brain, was thickened, opaque, and of a milky appearance. Serous fluid was effused into the texture of the pia mater. Several ounces

of yellowish serum were found in the lateral ventricles. The substance of the brain was healthy.

Case 3, *after Venesection.*—Henry Arnold, 51 years of age, admitted the 19th of January, 1827, having an old ulcer of the leg with much surrounding inflammation. He was twice bled from the arm, took medicine, &c. and the leg rapidly improved. Three days after the second bleeding, the wound of the vein became painful, and was found to be slightly inflamed. A poultice was applied and the arm felt easier, when on the evening of the

29th, (six days from the bleeding,) he was attacked with shivering fits, followed by heat and thirst.—31st. The inflammation had extended to the axilla, the arm being red, swollen, and painful on pressure from the elbow to that part, and he had a severe shivering fit in the afternoon. Similar shivering fits continued to recur.

On the 4th of February, he complained of severe pain in the left knee-joint, which was somewhat swollen. The arm was easy, and a small quantity of thin pus flowed from the wound in the vein on pressure. The countenance had a yellowish look, the pulse hard, full, and 100, tongue white and dry, with great thirst.—5th. The left knee and thigh were greatly swollen and very painful; the joint distended to the utmost with effused fluid,

causing a prominent tumefaction above and at the sides of the patella. All the superficial veins of the knee and thigh were excessively swollen, forming a very conspicuous net-work. The limb slightly red and preternaturally hot. Pulse soft and 140; tongue white, bowels open.

7th. Complained since yesterday of pain in the right shoulder, which continues, without swelling or redness. The knee relieved by cupping, and nearly free from pain, though the swelling is not much diminished. The pulse small, hard, and 120; tongue brown and dry; great thirst.—Died on the 8th.

The body was examined ten hours after death. —The cephalick-vein, which had been punctured, was thickened, and contained pus for about two inches below, and four inches above the wound, where a coagulum of blood was found filling the cavity; above and below these points the vessel was healthy.

The arachnoid membrane was thickened, opaque, and whitish. The cellular texture of the pia mater was loaded with serum, and an increased quantity of fluid was found in the ventricles.

The cavity of the knee-joint was filled with tolerably thick pus of an uniformly reddish colour, as if from an intimate admixture of blood. The

synovial membrane was thickened, with an irregular and almost villous surface; it was extremely vascular in its whole extent. The cartilaginous coverings of the femur and tibia had undergone considerable absorption, so that the convexities of the femoral condyles, and the corresponding excavations of the tibia, were completely bare. The cellular substance covering the capsule of the knee, under the extensor muscles, was inflamed, thickened, and loaded with pus. This texture was in the same state on the surface, and throughout the whole substance of the vasti and cruralis muscles. Sections of these muscles presented a most singular appearance, their large fasciculi being separated, apparently, by layers of thick yellow pus. The matter, although precisely similar in colour and consistence to that produced by phlegmonous inflammation, was nowhere collected into an abscess; but was diffused through the cellular structure, as serum is in the case of anasarca. In the rest of the limb there was an effusion of a bright light yellow serum.

The cellular structure, exterior to the orbicular ligament of the right shoulder, was filled with thick yellow pus; but the cavity of the joint and the deltoid muscle were natural.

Case 4, *after Venesection.*—Gaspar Goldinger*,

* M. le Herissé in Journal de Médecine, par MM. Corvisart, Leroux, et Boyer. Tome 12, p. 417, Paris, 1806.

subject for the last six weeks to epilepsy, was bled twice from the arm on the 1st of November, 1806; on the 8th from the foot; and on the 10th and 13th from the jugular vein. On the 16th he was again bled from the arm, (the right,) which on the following day felt painful; some redness and tension were observed round the aperture.—18th. Arm very painful and swollen from the shoulder to below the elbow; edges of the puncture red; face and skin of the body of a yellowish colour. Pulse feeble and frequent.—19th and 20th. Fever more intense; tongue dry and coated; great pain in the arm.—21st and 22d. Lies supine; prostration of strength; heat of skin; tongue dry; pain in right side of chest; respiration short.—23d. Tension of the arm diminished. Some pus flowed from the wound made in bleeding. Respiration short. Died at night, seven days after the receipt of the wound in the vein.

Dissection.—The wound in the cephalick open; the vein filled with pus through its whole length, *i. e.* from where it terminates in the axillary to the bend of the elbow, where it divides into the median cephalick and superficial radial, the latter of which contained pus for two inches below its origin. The coats of the vein were much thickened, indurated, and red.

In the interfibrillar cellular tissue of the pectoral muscle of the right side was a quantity of

thick greenish pus. Eight or ten ounces of a yellowish opaque serosity were contained in the right sack of the pleura. The lung of this side was unadherent, that of the left was adherent over its whole surface by a delicate false membrane. Both lungs presented a number of hepatized portions, varying in size from that of a nut to that of a large walnut, gorged with fluid, which in some of them was puriform.

The arachnoid membrane was opaque, thickened, and indurated; effusion of fluid between it and the pia mater, and into the texture of the latter. Some yellowish serum in the ventricles.

*Case 5, after Venesection**.—A robust soldier was bled for ophthalmia; next day great pain and swelling commenced in the arm, which gradually extended upwards; fever succeeded; and on the seventeenth day after the venesection, although the wound in the vein had healed, his pulse was 120, and feeble; skin hot; tongue covered with brown fur; respiration difficult; and great prostration of strength. The symptoms continued until the twenty-third day, when a painful swelling was observed above the clavicle, and in a few days a soft diffused swelling underneath the angle of the lower jaw. The symptoms increased slowly; respiration became more painful and difficult; pulse seldom less than 120; delirium oc-

* Hodgson on Diseases of Arteries and Veins, p. 512.

curred, and he died in the course of the seventh week after the bleeding.

Dissection.—The coats of the cephalick vein, which had been punctured, were thickened, and its cavity was obliterated, from an inch above the puncture to the shoulder. The brachial, the axillary, subclavian and internal jugular veins were enlarged, thickened, and indurated. The external jugular, (less than that of the opposite side,) and the subclavian veins were filled with pus. When slit open, they were found much thickened, and lined with lymph. The vena cava superior was healthy. The diseased appearances were not gradually lost, but terminated abruptly.

The heart was healthy, a serous fluid, with flakes of lymph floating in it, was contained in the cavity of the thorax. The lungs contained some small abscesses.

The structure of the brain was natural, but there was more serum than usual in the ventricles; the veins of the pia mater were turgid with blood.

Case 6, *after Venesection**.—Hugh Johnson, æt. thirty-three, was bled on the 15th of May, 1810, in the right median-basilick vein, for ophthalmia. From the 16th, he had felt pain

* Cooper and Travers's Surgical Essays, Vol. I. p. 229.

in the arm, the wound in which was found, on the 24th, with everted edges, and discharging a small quantity of pus. The pain extended upwards in the course of the arm, and he had a quick pulse. 25th, the local symptoms increased, and a good deal of fever present. 26th, less pain in the arm, tension and swelling greatly reduced; wound nearly closed. 27th, wound quite closed. 28th, arm free from pain, but the fever continues, and is now distinctly typhoid. The constitutional symptoms rapidly increased, and he died on the 6th of June, seventeen days after the vein was punctured.

Dissection.—Wound in the vein closed, pus occupying the mediana longa for about two inches below the origin of the median-cephalick and basilick veins, and a similar appearance was traced along the whole course of the humeral vein to the axilla; there was besides an irregular deposit of lymph, which adhered to its lining membrane. Before passing under the clavicle about an inch, the vein abruptly presented its natural appearance, and there was no sign of disease, between that point and the heart. This organ was healthy, except a small patch of lymph upon its anterior surface, and a similar deposition upon the opposite surface of the pericardium; a small quantity of fluid was found in the latter, and in both sides of the chest.

Case 7, *after Venesection.**—Michael Dogherty, æt. thirty-one, was bled from the right median-cephalick vein, on the 15th of April, 1821, having on the preceding day had a severe attack of rigors, followed by flushing, pains in the head, and the usual symptoms of continued fever. Inflammation of the vein took place.

On the fifth day the local symptoms had much increased, and pus mixed with blood could be pressed from the wound, while the pulse was 104, and feeble, the skin hot and dry, and the countenance anxious and oppressed. Eleventh day, the local and general affections have become aggravated; last night he had a severe rigor, with delirium, and he complains of great uneasiness extending across the chest. Seventeenth day, pulse 124 and feeble, considerable subsultus, countenance more anxious, and breathing hurried; delirium continues.

Twenty-seventh day, the wrist of the opposite arm is much swollen, and a distinct fluctuation is felt in it; exquisite pain in the left knee, which added not a little to his irritability. Twenty-ninth day, appears much reduced, and insensible, breathing laborious and hurried, pulse 136 and moderate; tongue and teeth covered with sordes. Died on the thirtieth day after the bleeding.

* Transactions of the Med. and Chir. Society of Edinburgh, Vol. I. p. 485-6.

Dissection.—The coats of the mediana-longa greatly thickened, and its inner surface lined with a thick layer of coagulable lymph. About the middle of the fore-arm, a small abscess had formed in the vein, but was prevented from extending by the lymph. Two inches above the bend of the arm, the cephalick and basilick veins were filled with pus, and their coats were uncommonly thin, and easily ruptured. This appearance extended to the axillary vein, and terminated abruptly before the vein crossed the first rib. The vein remained quite pervious, though its cavity was much diminished; neither did it contain a particle of blood, nor could its valves be observed.

Between the first and second ribs, near to their sternal extremities, an opening was discovered leading to a sack, formed by an adventitious membrane of coagulable lymph, filled with purulent matter, and pushing towards the pleura costalis. The sack contained four or five ounces of pure pus. At the left wrist there was a similar collection of matter, containing about six ounces of pus. The lungs were perfectly healthy in their structure, but several old adhesions existed between the pleuras in both sides. The heart was natural and healthy, but on the left side there was a deposition of coagulable lymph on its external surface, and the inner coat of the aorta to its arch had a deep red appearance. The other cavities were examined, but nothing of any importance was found.

Case 8, *after Venesection.**—Clementine, æt. twenty, in the sixth month of pregnancy, was bled on account of head-ache, and vague pains in the chest, on the 12th of January, 1827. Inflammation of the vein took place, followed by fever, great restlessness, &c.; on the 18th the wound made by the lancet was enlarged, and a small quantity of pus only evacuated. The local symptoms abated, but the general increased; the prostration of strength was extreme; the teeth and lips covered with sordes, the tongue black and dry. In this state, labour came on, and she died two hours after delivery, fourteen days after the vein was wounded.

Dissection.—The median-basilick vein almost entirely obliterated, its parietes at least a line in thickness; all the other veins opening into the trunk of the basilick filled with white healthy looking pus; until near the clavicle, the coats of the brachial vein were greatly thickened, and lined with a distinct concrete purulent membrane, its cavity being moreover filled with a thin reddish pus. The inflammatory changes in the coats of the vein diminished very rapidly from the axillary vein onwards, so that, opposite to the scaleni muscles, the subclavian offered no trace of them.

The superior cava and heart were quite healthy. There were very well marked traces of recent

* Archives Générales de Médecine. Aout, 1827. p. 503.

pleurisy, pulmonary *engorgement*, but not real pneumonia. The other parts of the body presented nothing unusual.

Case 9, *after Venesection* *.—Captain L. æt. thirty-four, was bled from the arm on the third day after undergoing the operation of lithotomy; inflammation attacked the vein, and he died at the end of the third week; symptoms of inflammation having come on, on the same side of the chest as that on which he had been bled, in the last forty-eight hours.

The basilick vein was thickened by inflammation up to its termination, and the veins corresponding to it were in the same state down to the back of the hand. The coats of the vessels were red, and the surrounding tissue was indurated by inflammation. The interior of the inflamed veins was partially roughened, as if by the deposition of lymph; they contained pus throughout. The whole subcutaneous tissue of the arm was inflamed, and partially infiltrated with serum. The axillary vein and the continuation of the trunk to the heart were free from inflammation.

The pleura was violently inflamed; the cavity contained about a pint of whey-like fluid, mixed with pus and flakes of lymph.

* Med. and Chir. Trans. Vol. XIV. p. 284.

Case 10, *after Venesection**.—Thomas Fuller, æt. twenty-one, an athletic man labouring under general anasarca and dry cough, was bled from the right median-basilick vein, on the 18th of June, 1827, and again in the evening from the same aperture; the blood last taken was somewhat buffed. On the 21st he complained of pain in the arm, which was tender and swollen, with some redness round the puncture; pulse 112, rather full and easily compressed; tongue white; bowels costive. 22nd, obtained some rest during the night, and the rigors have not returned. [It is not stated in the preceding reports when they had occurred.] Bowels freely opened, but he has been attacked with vomiting of green and bilious looking fluid. *Vesp.*:—Vomiting continues. 23rd, condition of the arm more alarming; a sero-purulent discharge continually oozing from the wound. Mr. Rose, by a free incision into the cavity of the vein, enlarged the original wound, giving issue to a mixture of serum, pus, and blood. The coats of the vessel were found to be extremely thickened. Pulse about 90; no pain in the chest; cough on a full inspiration. *Vesp.*:—There has been a free discharge of blood, and on making pressure on the cephalick vein, from the shoulder downwards, puriform matter oozes from the wound. 24th, a second hemorrhage more copious than the first occurred during the night, and was stopped by

* London Medical Gazette, Vol. II. p. 155.

a ligature was applied round the aperture by nipping up the coats of the vessel. As regarded the artery, every thing did well throughout; but, on the 9th of December, the ligature from the vein having come away, a slight hemorrhage was found on the 10th to have occurred from the wound, and he complained of tenderness in the course of the vessels towards the groin. On the 14th, he complained of head-ache; pulse quick and full; bowels open; not much thirst. On the 20th, had a severe rigor, followed by heat and profuse sweating; and on the 21st, a slight rigor. On the 25th, hemorrhage, to the extent of about twelve ounces, took place from the wound, which had previously been discharging pus copiously. The bleeding recurred next day.

From the 27th, frequent and severe rigors took place, the febrile symptoms increased, and his pulse became remarkably quick. A material change was observed in his countenance on the 30th; and on the 31st he died, thirty-two days subsequent to the operation. On dissection, an opening was found in the vein communicating with the external wound. The coats of the vein were thickened, and its internal tunic covered with adhesive matter. The adhesive inflammation extended to the iliac vein, as high as the bifurcation of the cava. The cava was also inflamed; but here the inflammation had not produced lymph or pus.

There was considerable serous effusion into the chest; one of the lobes of the left lung was covered with a recent deposit of lymph, and the parenchymatous substance of the lungs appeared to have been inflamed. There was also a slight inflammatory blush on the surface of the intestines; the other viscera of the abdomen appeared in a healthy state.

Case 12, *after the Operation for Aneurism.*—James Boyle, æt. 40, was operated upon for popliteal aneurism, by Mr. Carmichael*, on the 20th of May, 1818. Some little force was required to pass the aneurism needle under the artery, and as soon as it was accomplished, a gush of venous blood followed, which in a second or two spontaneously ceased. On the fifth day, a small quantity of pus flowed from the wound, and he now began to feel some general uneasiness. On the sixth day, his pulse rose to ninety, which since the operation had not exceeded seventy-five, his sleep was disturbed, and his countenance flushed, but he could not point out the particular cause of his uneasiness.

June the 7th, the thirteenth day, had several distinct rigors, followed by heat; discharge from wound increased in quantity. He sighed, or rather moaned, frequently, and he had the listlessness of

* Transactions of the King's and Queen's College of Physicians in Ireland, Vol. II. p. 350.

manner and countenance usually observed in the second or third week of typhus fever. On the 8th, had a strong rigor; and on the 9th, three; his manner now evinced great torpor and debility, and at times he muttered incoherently,—pulse ninety—tongue brown. Six ounces of blood taken from the arm had a buffy coat, and ten ounces on the 10th, had a similar appearance. On the 11th, he was evidently worse; in the evening had another rigor, after which, his face, which had been hitherto of a deep red, became pale and ghastly. He died on the 13th, twenty-four days after the operation in which the vein had been wounded.

Dissection showed that the crural vein had been wounded by the aneurism needle; but no portion of the vein was included in the ligature. On slitting it open, its interior surface was lined with pus and organized lymph, exhibiting the appearance which membranes present in a suppurating state. This appearance extended downwards almost to the ham, where it suddenly ceased, but the vein was rendered impervious at the part by a deposition of coagulable lymph. The disease also extended a considerable way down the saphena, upwards it was traced as far as the common iliac; but the examination was not allowed to be carried further.

Case 13, *after Amputation.*—John Crute *, æt.

* Cooper and Travers's Surgical Essays, Vol. I. p. 247.

30, suffered amputation of the thigh for a scrofulous disease of the knee-joint. During the first two days, he appeared unusually low, sighed deeply, and spoke but little. On the evening of the eleventh day, it became evident that he laboured under more constitutional irritation than is common after amputation, and he was attacked at night with severe bilious vomiting, his bowels being freely open. On the 4th day, the vomiting continued at intervals. The stump was dressed, and a copious discharge of grumous blood, accompanied with purulent sanies flowed from it. In the evening, slight rigors were followed by fever and delirium. On the morning of the fifth day, his pulse was thready, and very rapid, his countenance sunken, and he had incessant low muttering. He died next day, six days after amputation.

Dissection showed a ligature on the mouth of the femoral vein, from which all along this vessel, the external iliac and cava as far as the point at which the emulgents enter, the interior tunic was coated by large flakes of coagulable lymph. There were marks of diffused inflammation extending to the right auricle of the heart; but the signs of adhesive inflammation terminated as described.

Case 14, *after Amputation.*—Elizabeth Mitchell*

* Transactions of the King's and Queen's College of Physicians in Ireland, Vol. II. p. 365.

met with a compound dislocation of the ankle joint on the 27th of January 1818, amputation of the thigh was performed on the 13th of February; matters went on well until the 18th, when after a very bad night the pulse was found 114; small and easily compressible, the skin dry, heat less than natural; the yellow suffusion, which existed during the period of the sympathetic fever succeeding the accident to a greater degree than ordinary and had in some measure subsided, now assumed a deeper tinge; the tongue was covered with brown fur; the patient, who did not complain of thirst, had vomited in the night, complained of great depression and sense of sinking about the precordia, and sighed frequently; there was a thin and fetid discharge from the stump, but small in quantity; she did not complain of any pain in the stump, except what arose from changing the dressings.

On the 20th had a long and violent rigor; frequent and severe rigors continued to recur, and she died on the 14th day after the operation.

Dissection.—The surface of the stump gangrenous, the femoral vein on being slit up was found full of pus as high as Poupart's ligament; above this it was covered with irregular patches of coagulable lymph like a soft membrane. On scraping this off, the vein appeared very vascular, which appearance was continued as far as its junction with the corresponding iliac to form the cava; this last

was not inflamed. The liver was sound, and the gall-bladder loaded with a dark viscid bile. The examination could not be carried further.

Case 15, *after Amputation.*—Jane Strangemore * had the thigh amputated on the 27th of September 1823, for disease of the knee-joint; on the 28th, the pulse which had been eighty rose to 100, in the evening to 120; on the evening of the 28th she became sick, and vomited a quantity of bilious matter. October 1st, better, but looking irritable and ill, no pain, no sickness; 8th, wound looks well, edges have nearly healed; on the 9th she complained of pain in the other thigh and leg, (principally felt in the calf and heel,) which parts on the 10th swelled and became tender to the touch without redness. Vomiting again of bile; tongue furred; 17th, mostly the same, the sickness and vomiting of bile abating at intervals; 25th, slightly jaundiced in colour; died on the 27th, thirty days after the amputation.

Dissection.—The termination of the vein on the face of the stump in a sloughy state, as high as Poupart's ligament; the inside of the vein bore marks of adhesive inflammation; above that it contained purulent matter, lymph, and blood, partly coagulated, partly broken down; these appearances were extended up the cava beyond the

* Med. and Phys. Journal. Vol. LVI. p. 35.

diaphragm, and traces of inflammation could be distinctly observed almost into the auricle; the inflammation had descended along the left iliac vein into the pelvis, and along the femoral as far as the foot; at the left groin the iliac vein becoming femoral was distended with pus; the viscera were healthy.

Case 16, *after excision of a portion of Varicose Vein.*—John Dodging *, æt. 35, had a portion of a varicose vein excised from the right leg on the 25th of June 1828. The vein was a branch communicating with the posterior saphena. The following day he was attacked with sickness and vomiting, of greenish matter; his pulse rose to 120, with symptoms of inflammation along the thigh of the operated limb. On the 28th, there was pain in the epigastrium, great sickness, difficulty of breathing and restlessness.

30th. The left arm exhibited tension and other symptoms of phlegmonous erysipelas. On the 1st of July, the inflammation of the right leg had in a measure subsided; difficulty of breathing and pain in the epigastrium still present; the arm continues swollen and painful, as also the other leg, but less than on the previous day. 2d. Pain and tension in the head, with dry and brown tongue, and depression of power both mental and bodily.

* London Medical Gazette. Vol. II. p. 284.

3rd. The patient evidently sinking; the pulse fluttering, variable, and very frequent; the skin deeply jaundiced. The cornea of both eyes opaque, the vessels of the conjunctiva injected, the eyes constantly closed. The patient, though deprived of sight and in a great degree of sense, was still able to recognize the voices of those who spoke to him, and could by a strong effort open his eyes and put out his tongue when desired to do so, the latter being dry and nearly black; he died on the 4th.

Dissection.—Inflammation had extended to and along the posterior saphena as high as the ham, where it terminated abruptly; in this course the vein was partly plugged with lymph, and in places contained pus. Several smaller muscular branches contained fluid pus.

Deep seated abscesses had formed beneath the fascia of the left fore-arm and leg, separating the muscular fibres to a considerable extent; in the right fore-arm there was also sero-purulent effusion between the muscles.

No diseased appearances were found in the abdomen.

In the chest, a small abscess, evidently the product of recent acute inflammation, was found in the superior lobe of the right lung.

In the head, there was considerable effusion into the cellular tissue of the pia mater, particularly towards the basis, and the serum in the veins was of a deep yellow colour. Lymph was effused around the trunks of the carotid arteries, the nerve of the third pair on the left side was evidently flattened and softer than that on the right; the nerve of the fifth pair on the right side had undergone a similar change to a greater extent. It has been remarked that during life, great opacity of both corneæ had taken place, the surfaces of which had become rough. On removing the right eye, destructive changes were found to have taken place within the globe, the crystalline was so soft as to yield to the slightest touch, the vitreous humour was of a reddish yellow colour, and red vessels could be distinctly seen traversing its membrane; the retina was of deep red colour.

Case 17, *after division of the Saphena**.—A middle aged man had the saphena major divided where it passes over the inner condyle of the femur, on account of a varicose state of the veins of the leg, and an ulcer near the ankle. About three on the morning of the second day after that on which the operation was performed he had a shivering fit, and was rather light-headed; at noon his pulse was weak and quick, his tongue was slightly furred; he complained of sickness and

* Hodgson on the Diseases of Arteries and Veins. London 1815. p. 555.

head-ache, he was restless, his strength was depressed, and his countenance had assumed an appearance of great anxiety. He had no pain in the limb, he did not complain when it was pressed, nor was it tense or red. On the morning of the third day he was sick, and vomited some food which he had taken for breakfast; at noon, his pulse was frequent and low, his tongue was covered with brown fur, he complained of head-ache, and was much depressed. There was some redness of the thigh, but very little pain or tenderness. In the evening, the redness, pain, and tenderness of the thigh had increased and extended up the limb in the course of the vena saphena major; his pulse continued low and frequent: during the night he sunk, and died about three on the morning of the fourth day.

Dissection.—The external wound contained a small quantity of matter; the extremities of the vena saphena major, which had been divided in the operation, were united by coagulable lymph; the whole of the vein above the wound as far as its junction with the femoral vein was removed: its internal coat was rather redder and more vascular than natural, no coagulable lymph or pus was effused into its cavity, nor was any other preternatural appearance observed in it. The contents of the abdomen were examined, but all the viscera were in a healthy state. A portion of the

vena cava which was removed had a healthy appearance.

From these seventeen cases of fatal Phlebitis, the first conclusion deducible is, the total disproval of the assertion, that death results from the extension of the inflammation of the vein to the heart. In none of the ten instances following venesection was the superior cava affected, much less the heart; and in half this number, inflammation had not reached to the subclavian, or even to the axillary vein. In the cases where the inferior cava had become inflamed, viz. those of Crute, White, and Strangemore, the first is the only one in which the heart is represented to have been actually implicated; and here, the deposition of lymph terminating at the entrance of the emulgent vein, the observation is, that "there were marks of diffused inflammation extending to the right auricle of the heart, but the signs of adhesive inflammation terminated as described."

As a cause of death, then, the extension of the inflammation to the heart may be considered as a mere matter of assumption, the history of the error being simply this: Mr. Hunter's observations not having enabled him to form a decided opinion as to the cause of death, when this affection occurred in the jugular vein of horses, he suggested as a query, whether it might not depend on the

inflammation extending to the heart. By succeeding writers this suggestion was adopted, without examination, and without any evidence being offered in its support. Indeed the circumstance itself is of very unusual occurrence; for, with the exception of the instance just alluded to, I have only found two others in which it is alleged, that the inflammation had extended from the vein to the heart, and in these the description is not very precise. Both cases are mentioned by M. Ribes, in the Revue Médicale for July 1825. In one, occurring so far back as the year 1799, where the veins of the arm were inflamed, in connexion with gangrene of the hand from chilblain, " traces of inflammation " are stated to have been continued into the superior cava, and even to the interior of the right auricle and ventricle; and, in the other instance, where the saphena evinced some signs of inflammation, in a case of mortification of the leg and foot, it is stated in the same vague terms, that " the right auricle and ventricle of the heart, as well as the inferior cava, at its insertion into this organ, had manifest traces of recent inflammation."

It is to be regretted that M. Ribes has not distinctly specified what the " traces " were, which he considered as indicative of inflammation in the lining membrane of the heart; an omission, which when contrasted with his immediately preceding minute description of the changes produced by

inflammation in the coats of the veins, leaves us in considerable doubt as to the comparative value of these traces as proofs of inflammation. Of course, it is not by these remarks meant to be denied, that inflammation may extend to the lining membrane of the heart from the veins; but considering the fact itself as not yet sufficiently established, it is perhaps not requiring too much that the evidence adduced in its support should be of an unequivocal character.

As the preceding remarks have indicated, there are considerable differences in the extent of vein occupied by inflammation in fatal cases of Phlebitis. Sometimes the disease has spread into several, or most of the veins of a limb from that primarily affected; at others, it has not proceeded beyond the vessel in which it originally appeared. This last circumstance, with that of the fatal consequences sometimes ensuing from inflammation, limited to a few inches only of a vein, (as of about six of the cephalic, in the case of Arnold,) justifies the inference that the dangerous consequences from Phlebitis bear no direct relation to the extent of the vein which is inflamed.

In endeavouring to ascertain the nature of the connexion between the primary and secondary affections in this disease, the question which next suggests itself is, whether the latter depends, as has been alleged, upon the entrance of pus into

the circulation. We are thus led to inquire into the contents of the inflamed vessels, and on referring with this view to the cases which have been adduced, it will be found that in a number of them, where an open wound existed in the vein, pus was discharged from it during life. Whilst in fourteen cases out of seventeen, (those of Brancher, Carr, Arnold, Goldinger, that by Mr. Broughton, Johnson, Dogherty, Clementine, Captain L., Fuller, Boyle, Mitchell, Strangemore, and Dodging,) pus, or pus in conjunction with lymph, was present in the vessel after death. In two instances, no mention is made of pus, the contents of the veins being described in the one (White) as "adhesive matter", in the other (Crute), where the cava was concerned, as "flakes of lymph". In one case only, (Mr. Hodgson's,) where the inflammation occurred in a vein previously diseased, or in a vein the branches of which at least were varicose, neither pus nor lymph was found in the vessel.

It results from this statement, that although pus is present in the veins in the great majority of fatal cases of Phlebitis, and that although it should appear from the character of the general symptoms, and the effects produced upon animals, by the injection of a similar fluid into their vessels, that the passage of pus into the circulation is probably the principal, yet the circumstances do not justify us

in regarding it as the sole cause of the secondary affection. In addition to the presumed absence of pus in two instances, and to its declared absence in a third, it may be remarked, that the early appearance of the symptoms in some cases seems scarcely to correspond with the time usually required for the production of pus, as in one which occurred to Mr. Freer*, where they came on, suddenly, four hours after ligature of the saphena. If then, the constitutional affection in Phlebitis is to be explained by the introduction of a fluid into the circulation, which contaminates the blood, and operates as a poison, this property must be attributed to inflammatory secretions generally from the vein, although not purulent; and it remains to be seen whether the symptoms of this affection are such as can be accounted for by the passage of pus only into the system.

Before quitting the subject of the local affection, I would allude briefly to a circumstance which has escaped the notice of those who have previously treated of inflammation of veins, viz. the point at which the inflammatory changes in the coats usually terminate. According to my observation, these changes are limited by the passage of a current of blood; where a trunk is concerned, the boundary being the en-

* Hodgson, on Diseases of Arteries and Veins. Case 53, p. 551.

trance of a branch, and where a branch is concerned, the boundary being the junction of this with the trunk.

My attention was first called to this circumstance, in examining the inflamed jugular vein of a horse, in company with Mr. Field, jun. of Oxford Street, whose kindness, in connexion with his zeal in all that concerns the pathology of this animal, procured me the advantage of so doing.

A horse being seized in the Park with paralysis of the posterior extremities, was with difficulty got back to the stable. He was immediately bled from the left jugular vein, and Mr. Field having seen him four hours afterwards, ordered the bleeding to be repeated, which was performed from the same orifice. The paralysis was not relieved, and the vein having inflamed, it was determined, after the lapse of some days, to destroy the animal.

On the 30th of June, seven days after the venesection, I saw him, and found great tumefaction all along the left side of the neck, in the course of the jugular vein, from the angle of the jaw to the chest, the parts being tense, firm, and tender to the touch. The aperture made in bleeding was covered by a small crust of dried blood. The vein could not be distinguished amidst the general swelling, but the facial, and all the other veins of

this side of the head and face were quite turgid with stagnant blood.

The horse was pithed, by passing a knife between the skull and the first vertebra of the neck, and the examination immediately made. The cellular substance beneath the skin, and over the course of the jugular vein, was loaded with coagulable lymph, becoming more firm as it approached the vessel, so that its cellular sheath was converted into a solid thick coat, having numerous red vessels distributed on its inner surface. The proper coats of the vein were enormously thickened; the aperture made in bleeding was filled with a granular-looking substance of a yellowish white colour, which substance (coagulable lymph) completely plugged the cavity of the vein opposite the puncture, and for an extent of about three quarters of an inch downwards. The great thickening and increased vascularity of the coats of the vein, together with a roughened red internal surface, extended three inches below the plugged part to the entrance of a small vein at the bottom of the neck, where they suddenly and abruptly terminated. The canal through this portion of the vessel was greatly contracted from the excessive thickening of the coats, but it was pervious; no blood had however circulated through it. At the entrance of the branch just mentioned, the coats of the jugular resumed their natural appearance, and the

blood brought in by this communicating branch, passed freely onwards to the heart.—Above the portion of vein which was plugged with lymph, the thickening of the coats extended, (but in a much less degree than below,) to where the jugular divides into the external anterior and the external posterior branches. The canal of the vessel for this extent was filled with coagula of blood adhering somewhat firmly to the inner surface of the vein, which here presented a smooth appearance; these coagula extended into the branches above mentioned, from the divided superior extremities of which they were forced, in the form of plugs, by the mass of fluid blood accumulated beyond them. The accompanying drawing presents an accurate representation of the principal points described. See p. 263 for explanation of plate "i" at end of book.

Soon afterwards, on examining the body of a man, whose case will be subsequently described, and where there had been inflammation of the right femoral vein and the branches which contribute to form it, I found the diseased changes extending along the external iliac vein to the entrance of the internal iliac. Here, however, the great thickening of the coats, and the presence of matter, (resembling a mixture of lymph, pus, and blood,) in its cavity suddenly ceased; the coats and inner surface of the common iliac vein, together with those of the internal, being perfectly natural in appearance. No impediment existed to the

entrance of the morbid contents of the diseased portion of vein into the healthy; and as these presented themselves to the action of the current of blood passing from the internal into the common iliac, they must have been swept onwards by it to the heart.

In another case which I have since seen, of inflammation affecting the left spermatick vein, (in a female,) producing thickening of its coats, and a deposition of lymph and pus into its cavity, the diseased changes involved the emulgent vein, but stopped precisely at the entrance of this into the cava, which was healthy.

I believe that in the case of Brancher, the inflammation in the basilick vein was bounded by the entrance of the subscapulary, the axillary vein not being affected. It will be found in the report of Carr's case, that immediately above the termination of the diseased appearances, the cephalick and several smaller vessels entered. In the instance of Goldinger, the inflammation extended in the cephalick, to where it terminates in the axillary. In the case of Mitchell, the morbid appearances extended in the common iliac, to where it joins the cava, which was not inflamed. In the case of Mr. A. related by Dr. Duncan *, they spread in

* Trans. of the Med. and Chir. Soc. of Edinburgh. Vol. I. p. 448.

the cephalick, to its termination in the subclavian, which remained quite healthy.

Of three cases of inflammation of the cava after parturition, seen by Mr. Wilson *, in two the diseased changes ceased at the entrance of the venæ cavæ hepaticæ, and in the other, at the entrance of the emulgent veins. In the instance of Crute, it is distinctly stated that the deposition of lymph in the cava terminated at the entrance of the emulgent. And it would be easy to show, by referring to the details of several of the other cases, that the point at which the inflammation in the vessel is stated to have ceased abruptly, corresponds precisely with that at which certain veins enter.

I have stated the foregoing facts regarding the limits of the diseased changes in Phlebitis, without pretending to explain how it happens that this same inflammation which has stopt short at the entrance or passage of a current of blood, may not only already have passed several currents, but have extended itself into the vessels conveying them.

The secondary affection in Phlebitis, usually shows itself in from two to ten or twelve days after

* Trans. of a Soc. for the Improvement of Med. and Chir. Knowledge. Vol. III. p. 65.

the receipt of the injury which has occasioned the inflammation in the vein; when the vessel has been previously diseased, sometimes sooner. The symptoms may be thus briefly characterized.—

Great restlessness and anxiety, prostration of strength and depression of spirits, sense of weight at the precordia, frequent sighing or rather moaning, with paroxysms of oppressed and hurried breathing, the patient at the same time being unable to refer his sufferings to any specific source. The common symptoms of fever are present, the pulse is rapid, reaching sometimes to 130 or 140 in a minute, but is in other respects extremely variable. There is often sickness and violent vomiting, especially of bilious matter. Frequent and severe rigors almost invariably occur, sometimes to the number of three or four in the course of a few hours. The general irritability and deep anxiety of countenance increase, the manner is quick, and the look occasionally wild and distracted.—When left to himself, the patient is apt to mutter incoherently, but on being directly addressed, is found clear and collected. The features are pinched, and the skin of the whole body becomes of a sallow, or even yellow colour.

Under symptoms of increasing debility, and at a time when the local affection may appear to be in a great degree subsiding, secondary inflammations of violent character, and quickly terminating

in effusion of pus or lymph, very frequently take place in situations remote from the original injury; the cellular substance, the joints, and the eye have been affected, but it is more particularly under a rapidly developed attack of inflammation of the viscera of the chest, that the fatal issue usually occurs. Whether this is observed or not, death is always preceded by symptoms of extreme exhaustion, such as those of a rapid feeble pulse, dry, brown, or black tongue, teeth and lips covered with sordes, haggard countenance, low delirium, &c.

The duration of this affection offers some variety. The following are the periods which intervened between the receipt of the injury occasioning the Phlebitis, and the unfavourable result in the cases which have been related and cited:

In Mr. Hodgson's case death took place on the morning of the 4th day after division of the saphena: in the case of Fuller, from venesection, and of Crute from amputation, six days: in Goldinger, from venesection, seven: in Dodging, from excision of the saphena, nine: in Clementine, from venesection, and Mitchell from amputation, fourteen: in Arnold, from venesection, sixteen: in Brancher, from venesection, seventeen: in Boyle, from puncture of the femoral vein, nineteen: in Captain L., from venesection, end of the third week: in Johnson, from venesection, twenty-two

days: in Carr, from venesection, twenty-nine: in Dogherty, from venesection, and Strangemore, from amputation, thirty: in White, after puncture and partial ligature of the femoral vein, thirty-two: and in Mr. Broughton's case, after venesection, the end of the seventh week.

The morbid appearances found on examination of the bodies of those who have died of Phlebitis, are very remarkable, and are such as we usually regard to be indicative of the recent existence of violent inflammation, and that too in various organs and distant parts of the body. These are:—

In the Chest—effusions of sero-purulent fluid into the cavities of the pleuræ and pericardium, exudation of coagulable lymph on the surfaces of the heart and lungs, hepatisation of the latter organ, the infiltration of pus into its tissue*, or small collections like a mixture of pus and lymph †. Such appearances presented themselves in ten cases (Carr, Goldinger, Mr. Broughton's case, Johnson, Dogherty, Clementine, Capt. L., Fuller,

* Pus was deposited in the muscular substance of the heart in a case of Phlebitis after venesection, which occurred subsequently to this paper being read to the Society, and an account of which, presented to me by Mr. Lawrence, will be found in the Appendix.

† In the Appendix will likewise be found the history of a case of inflammation of the jugular vein in the horse by Dr. John Sims, where depositions of a similar nature had take place into the lungs.

White, and Dodging,) out of seventeen; in three, (Boyle, Mitchell, and Mr. Hodgson's case,) the thorax was not examined; in two, (Crute and Strangemore,) the condition of its contents is not noted; and in two, (Brancher and Arnold,) no diseased appearances were observed*.

In the Cellular Substance, intermuscular as well as subcutaneous—pus and sero-purulent fluid have been extensively deposited, sometimes in collections like abscesses, at others, appearing more like an effusion into its cells, than as resulting from the common process of inflammation. These collections most frequently occur in the vicinity of the joints. In two cases (Brancher and Dogherty) pus was deposited under the skin of the opposite fore-arm, near the wrist; in one, (Arnold,) with inflammation of the knee joint, into the intermuscular cellular substance of the correspond-

* A fluid state of the blood which has been remarked after death from Phlebitis, is neither invariably noticed, nor does it prevail throughout the whole of the circulating system. The cavities of the heart usually contain coagula. This was the case in Brancher and Carr, and I have observed the same fact in other instances, where, though of somewhat looser consistence, the fibrin had separated. In a case of inflammation of the saphena, I lately found both femoral veins filled with soft coagula, the blood in the cava fluid, and that in the heart again coagulated. The tendency to fluidity—a change in the colour of the blood—and a staining of the vessels, circumstances occasionally met with after death from Phlebitis, I am unable at present to appreciate the value of, as evidences of disease.

ing thigh, and into that external to the joint of the opposite shoulder; in one, (Dodging,) into the intermuscular cellular substance of the opposite leg and of both fore-arms; in one, (Goldinger,) into the interfibrillar cellular tissue of the corresponding pectoral muscle, and in another, (Dogherty,) between the sternal extremities of the two first ribs and pleura.

A Disease of the Joints,—consisting of a most violent inflammation of the synovial membrane, its distension with purulent matter, destruction of the cartilage, and baring of the bones (Arnold's case). These changes too, taking place in the brief space of a few days, the knee having been first attacked with pain four days before death, which again took place in sixteen from the date of the injury of the vein which caused its inflammation. In two other cases, (Brancher and Dogherty,) there was affection of the knee joint, but the parts were not examined after death*.

In the Eye—opacity of the cornea, injection of its blood vessels, and destructive changes in its humours or coats, occurred in Dodging.

* An instance of an affection of the knee and shoulder joints consequent to Phlebitis after venesection, equally destructive in its effects as in Arnold's case, has since occurred in St. George's Hospital, where, through the kindness of Mr. Keate, I had an opportunity of seeing the patient during life, and being present at the examination of the body after death. The case has been reported, Med. Gazette, Vol. II. p. 730.

Besides these affections, there were found in five instances, (Carr, Arnold, Goldinger, Mr. Broughton's case, and Dodging,) within the cranium, opacity and thickening of the tunica arachnoides, effusion between it and the pia mater, and increased secretion into the ventricles. In nine, (Brancher, Johnson, Capt. L., Fuller, White, Crute, Boyle, Mitchell, and Mr. Hodgson's case,) the head was not examined; in three, (Dogherty, Clementine, and Strangemore,) no morbid appearances were noticed.

The morbid appearances above described are, as it will have been remarked, met with singly or variously combined, in particular cases; and from the variety of situations in which these secondary local affections have been observed, it seems probable that there are few organs or parts in which they may not occur. But although some of them are generally found present, the constitutional affection in Phlebitis occasionally proves fatal, without a secondary local affection having developed itself.

On considering the progress of the secondary affection in Phlebitis, such as it has now been described, it is impossible not to be struck with the resemblance which this bears to that of diseases arising from the inoculation of a morbid poison. There is in the first place, a local affection, (it may be of very trifling extent and severity,) upon which the secondary affection

supervenes in the form of great constitutional disturbance followed by violent inflammations in one or more parts of the body. With this general resemblance to inoculated diseases, there is one to whose characters it more particularly approximates; viz. that which arises from the operation of poison received in wounds from dissection. We have an equally early appearance, and an equally rapid developement of symptoms nearly similar; succeeded by destructive inflammations in one or more situations remote from the primary affection, with equally fatal results. These secondary inflammations very much accord also in the parts which they attack. If the cellular substance* is in a particular manner affected, in

* The affection of the cellular substance as a consequence of wounds received in dissection, is, like that from Phlebitis, neither continuous, nor limited to the side of the body on which the injury has been inflicted.

In the case of Dr. Dewar, (Transact. of the Med. Chir. Society of Edin. Vol. I. p. 315.) pain, redness, and swelling took place in the opposite fore-arm, on the day before his death, which occurred on the sixth after the injury was received in dissection. The body was not examined.

In Mr. Cumming, (Ibid. p. 316.) inflammation attacked the opposite fore-arm on the fifth day after the dissection at which he had been present, and previous to death which took place on the eleventh day, occupied the whole limb from the fingers to the acromion. The body was not examined.

In the instance of Mr. Graves (Travers on Constitutional Irritation, p. 253.) who died on the thirteenth day after a puncture of the left finger in opening a body, the right fore-arm became inflamed and soreness of the right foot and ancle

consequence of the introduction into the system of the poison of dead animal matter, this also occurs as a consequence of Phlebitis, and some of the more obscure affections of the first class of

also occurred. After death, purulent matter was found in these situations.

In the history of the case of M. Girard fils, (Revue Medicale, Tome Second. Paris, 1826. p. 96.) who likewise died from the consequence of puncturing a finger, of the left hand, in examining a body, it is stated, that " une circonstance fort remarquable, et qui sembla faire diversion momentanément aux autres symptômes, est une douleur qui se manifesta à l'articulation fémoro-tibiale gauche, et sur la crête du tibia : douleur qui sembla d'abord offrir les caractères d'un rhumatisme aigu, d'une inflammation profonde de l'articulation, ou de celle d'un nerf voisin. La moindre pression exercée sur la face antérieure de la jambe, et dans un point circonscrit, faisait crier le malade. On ne remarquait cependant ni gonflement ni rougeur inflammatoire ; mais deux jours plus tard, il survint un peu d'empatement à la jambe, dans le point correspondant à la douleur, et un examen plusieurs fois répété fit soupçonner l'existence d'un peu de pus sous l'aponévrose tibiale, quoiqu'il n'y eût aucune fluctuation bien manifeste. J'y portai l'instrument, et je fis une incision de deux pouces, qui intéressa la peau, l'aponévrose tibiale et les muscles subjacens vers le quart supérieur de la jambe, près de la crête tibiale ; il en sortit environ une cuillerée de liquide grisâtre, puriforme, qui semblait infiltré dans le tissu cellulaire inter-musculaire."

In Mr. Turner, who injured his finger in examining the head of a horse which had died of glanders, an abcess formed in the opposite arm, and another on the lower part of the back. Subsequently an abscess formed in his lungs, another in the kidney, and at the expiration of several months abscesses formed successively upon each knee joint. A short time afterwards Mr. Turner died.—Travers on Constitutional Irritation, p. 351.

cases may even perhaps be elucidated by the events of the latter.

Mr. Dease, who it is well known died from the consequences of a wound received in dissection, experienced severe pain at the point of the shoulder, accompanied by no external signs of inflammation, and without there being any trace or connexion between the wound and the seat of pain. The body was not examined. And Dr. Colles, who relates the case*, expresses himself as being at a loss to account for this pain. In Arnold's case, pain was felt in the same situation, in the shoulder opposite to that of the arm in which the Phlebitis existed, and without either swelling or redness; on examination of the body, the cellular substance exterior to the orbicular ligament of the joint was found filled with pus.

Mr. Shekelton, who died under similar circumstances to those of Mr. Dease, was attacked, on the eighth day of the disease†, by excruciating pain in the opposite knee joint, and the adjoining thigh was swollen, but not discoloured. He died on the tenth day. The body was not examined. In Arnold's case the affection of the knee commenced with severe pain in the joint on the twelfth day of the disease, and he died on the six-

* Dublin Hospital Reports. Vol. III. p. 210.

† Ibid. Vol. IV. p. 243.

teenth. The description of the symptoms and appearances on dissection, may serve to explain the occurrence in Mr. Shekelton's case.

These considerations show that the secondary effects of Phlebitis are connected with a vitiated state of the circulating fluid; a further proof of which may be found in the yellow colour of the skin, so constantly observed in cases of this disease.

In conclusion, it results from the foregoing facts and arguments, that death, in cases of Phlebitis, does not take place from the inflammation extending to the heart; whilst the history and character of the symptoms which precede this event, the very small portion of vein which is sometimes found to have been inflamed, and the general presence of pus in its cavity, all tend to establish, that the entrance of this fluid into the circulation is the principal cause of the alarming and fatal consequences of Phlebitis, a similar influence being perhaps also possessed by any inflammatory secretion from the vein *.

* In drawing the inferences contained in the text, from the seventeen cases of fatal Phlebitis previously detailed, it may be here stated that a case mentioned in the Lond. Med. Repos. Vol. 7, p. 288, and another related by Dr. Chapman in the Philadelphia Journal, No. 14, p. 322, have been excluded, because the history of the first is imperfect, and the examination of the body in the last was incomplete. So far as they go, they support the views derived from the other instances of the disease here given.

PART II.

The fact of purulent matter being sometimes deposited without much sign of previous inflammation, in a part of the body remote from one in a state of suppuration, has been long known in the history of medicine, under the name of abscess by Metastasis; and it was formerly supposed that the matter was taken up and transferred, ready formed, to its new situation.

Subsequently to the middle of the last century, such views were entertained also in this country. Mr. Cheston, Surgeon to the Gloucester Infirmary, whose valuable Pathological Observations were published in 1766, in his chapter on abscess of the liver succeeding to injuries of the head, after relating a case, and seeking, like the French writers of the period, for a special explanation of the occurrence, remarks, that, "translations of matter from one part to another are by no means uncommon, but are frequently to be met with after amputation of the larger limbs, where the vis vitæ is impaired, and cannot support that discharge of matter, so necessary to complete the design of nature in healing a large wound; but, under such circumstances, there is very little, if any, appearance of an inflammation, and the matter is rather disseminated through the viscus on which it falls, than is collected in one or more large vomicæ." p. 38.

Upon the subject of a translation of purulent matter, Mr. Hunter's opinions were very decided; he discredited it as an occurrence, and, as an operation, he declared it to be absolutely impossible *. He denied also, that the absorption of this fluid was attended with those pernicious effects which had been generally attributed to it, and, in his argument against the purulent origin of hectic, remarks, with some inconsistency, that "although matter too is frequently found in the inside of the veins in cases of inflammation of their cavities, and the matter cannot fail of getting into the circulation, yet in these cases we have not the hectic disposition, but only the inflammatory." † And it is probably in some measure owing to the influence of these opinions of Mr. Hunter, that affections of the viscera, which had formerly been regarded as arising from a metastasis, ceased, for a time, to interest or attract the notice of English pathologists and surgeons.

In Italy, the authority of Morgagni, and a pathology less exclusively founded on the action of the solids than those which prevailed in this country or in France, have prevented this subject being overlooked. Monteggia, in his Instituzioni Chirurgiche, published at the commencement of the present century, attaches a degree of import-

* Hunter on the Blood. 4to. London, 1794. P. 360.
† Ibid. P. 501.

ance to the subject of Metastasis, which he states can only be appreciated by those who, like him, have frequently seen patients, more especially surgical patients, very unexpectedly carried off by its occurrence; and who, like him, have made numerous morbid examinations, with the view to the investigation of it. He describes the serous membranes of the great cavities of the body, as being particularly liable to the operation of the absorbed matters or vitiated humours, in the transmission of which he believes, and that upon these, a secondary inflammation with rapid effusion is in consequence produced; but, he continues, "however frequent in its occurrence, it is not to the enveloping membranes only, that a Metastasis takes place, for with this, viz. the affection of the serous membrane, there are frequently conjoined abscesses in the form of separate tubercles in the substance of the viscera, especially in the lungs and liver; in the former organ, these being usually superficially situated. At other times the Metastasis is limited to the simple infiltration of purulent matter into the cellular substance of the viscus, and that most frequently in the lungs, without the presence of much serum or pus in the cavity of the chest, or of tuberculous abscesses. These last also have not usually the appearance of regularly formed abscesses, but consist of whitish masses, somewhat firm, infiltrated with purulent matter, rather than hollow cavities filled with pus, and probably owing to the occurrence of death pre-

vious to the suppurative process being completed." *

These morbid appearances in the viscera are referred by Monteggia to the absorption of pus and other diseased secretions into the blood, in consequence [illegible] his having frequently found in the examination of limbs, which had been the seat of extensive suppuration, and, in cases of wounds, the neighbouring lymphatick vessels and veins, but particularly the former, filled with purulent matter.

Mr. Guthrie †, in directing attention to a sudden and insidious attack of inflammation of particular parts, and especially of the lungs, as a cause of death after secondary amputation, (and of which inflammation, when the viscus affected is other than the lungs, he believes the termination is less rapid, suppuration taking place and abscesses being formed,) considered it as depending "on the alteration which takes place in the sanguiferous system, in consequence of the amputation, and the suppression of the discharge causing fever, and a determination to, and irritation in, a particular part."‡—"The viscera in each person most pre-

* Instituzioni Chirurgiche. Edizione Seconda. Vol. I. Milano, 1813. P. 86.

† On Gunshot Wounds. 1st Edition, 1815, p. 73 et seq.

‡ Ibid. 2d Edition, 1820, p. 235.

disposed to disease, being most likely to be affected."*

Mr. Bell†, in describing inflammation of the lungs to be by far the most frequent cause of death in severe wounds, and especially in compound fractures, states, that independent of all pre-disposition or previous derangement, where a patient is reduced by the discharge or irritation of a wound, on any inflammatory action being stirred up, the lungs are most prone to become inflamed; that in such cases the characters of the symptoms are altered by the patient's condition, and the first stage is past before the surgeon is aware of the formidable nature of the attack.

Pleurisy, and tuberculous abscesses in different organs of the body taking place subsequent to great surgical operations and suppurating wounds, have been the subject of several valuable communications from M. Velpeau ‡.—Like Monteggia, he attributes these occurrences to the absorption of pus, having repeatedly found that fluid in the veins. He considers § that they receive it, from the lymphatics which open into them, by imbibi-

* Guthrie on Gunshot Wounds. Second Edition, 1820, p. 253.

† Surgical Observations. Vol. I. 1817, p. 241. et seq.

‡ Revue Médicale. Juin, Juillet, et Decembre, 1826. Mai, 1827.

§ Ibid. Juin, 1826, p. 447.

tion, or by the numerous branches (viz. of veins) which remain open in the wound; and that the fluids in the chest * and the matter in the secondary abscesses are the result of an actual metastasis, having been brought from the part in a state of suppuration †.

In the remarks which precede the very interesting cases of depositions of pus or lymph in the viscera after injuries, detailed by Mr. Rose in the last volume of the Society's Transactions, that gentleman considering the cause of these occurrences as very obscure, does not make any attempt to account for them.

In the statement which has been now made, I have not alluded to the theory which attributes the formation of these abscesses to a disturbance of the nervous system, the opinion itself being so purely conjectural, and the operation of the cause so undefined and unintelligible as to render this unnecessary. In fact, the only view of the subject supported either by evidence, or argument, is that which considers the origin of abscesses and inflammations in remote situations after injuries, as connected with the absorption into the circulation of purulent matter from a wound. That they do depend on the entrance of such fluid into the blood, the consequences which have been ob-

* Revue Médicale. Decembre, 1826, p. 390.
† Ibid. p. 398. Ibid. Mai, 1827, p. 236.

served to follow Phlebitis simply, sufficiently testify, and it becomes a question, whether the occurrence of Phlebitis, and the passage of pus from an inflamed vein into the circulation, is not of itself sufficient to account for the secondary affections of wounds, without its being necessary to resort to an absorption of the same fluid from their suppurating surfaces.

The secondary affections succeeding to wounds, are, effusions of pus and sero-purulent fluid into the cavity of the chest, and inflammation of the pleura; similar affections of the cellular substance; effusion of pus into, and inflammation of the synovial membranes; depositions of pus and tuberculous abscesses in different organs of the body, viz. in the brain, lungs, heart, liver, spleen and kidney.

Now when it is considered that abscesses have formed in various parts of the body from the ligature merely of a vein, as of the saphena *—that pus was deposited under the skin of the fore-arm in the case of Brancher,—that rapidly destructive inflammation in the knee-joint took place in the case of Arnold,—that the same occurred in the eye in the case of Dodging,—that where symptoms of inflammation of the chest were observed during life, the effects witnessed, on examination after death, were of very disproportionate degree and

* Carmichael, in Trans. of the King and Queen's College of Physicians. Vol. II. p. 346.

extent,—and that effusions of coagulable lymph, and sero-purulent fluid into the chest, together with abscesses in the lungs, were found where no symptoms had indicated their existence;—I say, when it is considered that *all* these consequences ensued from so simple and definite an injury as the puncture, division, or ligature of a vein, it is impossible to resist the supposition that, where similar secondary affections have succeeded to a more extensive wound, they may in reality have originated in the same cause, viz. inflammation of a vein or veins.

If such view of the subject is correct, we ought, on the one hand, in cases where the consequences already mentioned have succeeded to wounds and injuries, whether of the extremities or head, to find evidences of inflammation of the veins of the part which had been primarily or mechanically injured, and, on the other, to meet with similar secondary affections in cases where inflammation of the veins is known to be of common occurrence, as after parturition; that this is actually the case, I shall now proceed to show.

AFFECTIONS OF THE VISCERA, OF THE JOINTS, AND CELLULAR SUBSTANCE, AFTER INJURIES OF THE EXTREMITIES.

In the following four instances will be found secondary affections of the viscera after injuries of

the extremities, in connexion with inflammation of the veins in the wounded limb.

Case I.—Came under my own observation.—J. R. æt. 52, had the left leg amputated on the 18th of November, 1826, on account of mortification of the foot succeeding to a severe bruise from the tread of a horse. Considerable bleeding took place from the surface of the stump, and amongst other vessels, two veins were tied. The wound did not unite: constitutional disturbance with anxiety of countenance and great exhaustion ensued, and death, on the 3d of December. On dissection, a large quantity of sero-purulent fluid was found in the left cavity of the thorax, and the pleura pulmonalis was covered with coagulable lymph. The right lung contained a small abscess. The coats of the vena-saphena were thickened, and its cavity, for the last two or three inches of its course, just before its junction with the femoral, filled with pus, no impediment to the entrance of which into the femoral vein existed. The capsule of the left hip-joint was distended, with purulent matter. Ulceration of the synovial membrane, and absorption of the cartilage in the head of the femur around the ligamentum teres had taken place, so as to expose the bone for a small extent; the synovial membrane offered no other indication of previous inflammation. Similar appearances were found in the opposite hip-joint.

*Case II.**—A man, who had compound fracture of the left leg, for some time went on favourably. He was then attacked with fever; the wound assumed an unhealthy appearance; the whole limb became œdematous, rigors occurred, and the integuments of the face and body had a yellow colour. He died within the month. On opening the chest, there were found in the right lung, which was unadherent and presented its natural colour and density, four abscesses, two in the superior and two in the inferior lobe. In the left cavity of the chest was contained a quantity of sero-purulent fluid, and in the lung of this side, which was likewise soft and elastic, but of a livid colour, there were several detached and scarcely suppurated tubercles. The crural vein was inflamed, and its cavity filled with purulent matter; the inflammation extended along the vessel to the iliac vein, as far as the junction of this with the cava, which was healthy.

Case III.†—Henrius, æt. 19, underwent amputation of the second metatarsal bone of the right foot. On the 9th day the skin was jaundiced, and a slight redness was perceived on the back of the left hand, where fluctuation was already felt, and from which situation pus was evacuated by puncture on the succeeding day; he died on the evening of the 10th under symptoms of great exhaustion. The left lung contained a number of small abscesses;

* Palletta, Exercitationes Pathologicæ. Milano, 1820, p. 21.

† Velpeau, Revue Médicale. Juillet, 1826, p. 68.

the cellular substance of the left fore-arm and arm was infiltrated with pus; the joint of the shoulder externally appeared sound, but on dividing the orbicular ligament, it was found to contain an ounce and a half of thin yellow pus. The synovial membrane was neither red, thickened, nor opaque, or its polish at all changed, in fact, with the exception of the yellow colour which it shared in common with all the tissues of the body, it presented a perfectly natural appearance. The veins on the dorsum of the foot were red, greatly thickened, and their cavities filled with pus.

*Case IV.**—Frederick Wells, a robust countryman, æt. 25, had the right leg amputated in St. George's Hospital, by Mr. Rose, on the 9th of June, four hours subsequent to an accident, by which the metatarsal bones of the foot had been fractured and dislocated. Two days after the operation, a degree of irritability and morbid quickness was observed in his answers, which increased. The stump did not unite, but assumed a sloughy appearance; he was restless; the complexion became sallow, the features pinched; he had rigors, and the pulse ranged from 100 to 140; pain was felt in the course of the vessels, and he died nine days after the accident. In the right lung were several yellowish masses, which appeared chiefly formed of coagulable lymph, but when cut into were found

* London Medical Gazette. Vol. II. p. 127.

to contain pus; the liver was large, and ecchymosed spots were observed upon its surface, but it was healthy in other respects; the femoral vein was filled with pus from the ham to the point where it is joined by the profunda vein, and its internal surface was covered with a thick layer of coagulable lymph.

Sero-purulent effusion into the chest,—abscess in the lungs,—disease of the joints and cellular substance having been found to succeed to Phlebitis simply, may not the same occurrences in these four cases be referred to the inflammation and suppuration of the veins which existed?

AFFECTIONS OF THE VISCERA, OF THE JOINTS, AND CELLULAR SUBSTANCE, AFTER INJURIES OF THE HEAD.

Abscesses of the liver after injuries of the head long excited much curiosity, and a variety of speculations were indulged in, to account for the occurrence. They were attributed by some to an increased quantity of blood returning from the head through the superior vena cava, proving an obstacle to the ascent of that through the inferior; by others, to a smaller quantity of blood being carried to the brain, and consequently a larger quantity being sent to the abdomen; they were attributed by some to concussion of the brain, and the nervous system was supposed to be the principal agent

in their production; by others, they were referred to direct injury of the liver at the time of the accident. The first two of these speculations fell to the ground, when it was remarked, that abscesses occur in the viscera of the chest, as well as in those of the abdomen, after injuries of the head, and the two last, when it was observed, that they have taken place when neither the brain nor the liver have been the subject of concussion or of direct injury.

But of what nature are the injuries of the head, to which secondary affections of the viscera, of the abdomen, and chest succeed, and what are the circumstances under which these occur? Upon neither point do systematic writers afford us any information; and those whose attention has been more particularly directed to the subject have been too much occupied with their own hypotheses, and their own limited observation, to allow them to form a comprehensive and correct estimate of these circumstances.

With the view of supplying this deficiency, and of enabling us to arrive at more satisfactory conclusions as to the origin and cause of secondary affections in distant parts after injuries of the head, I have referred to a number of cases, and, taking every one which presented itself, I have noted the following particulars.

*Case I.**—Compound fracture of the cranium near the sagittal suture, with division of the membranes of the brain; the patient died delirious and hemiplegic. Abscess in the cerebrum, a large quantity of pus in a cavity in the left lung, pus on the surface and in the substance of the heart.

Case II.†—Compound fracture of the os frontis over the left eye, with laceration of the dura mater, from the thrust of a lance (Shikan.) Death on the fourteenth day. Large abscess in the liver.

Case III.‡—Fracture and depression of the bones of the cranium near the lambdoid suture, trepan applied: did well until the twentieth day; pain in the right side a few days before death, which took place on the twenty-eighth. Abscess in the liver.

Case IV.§—Compound fracture, with depression of the os frontis, from a blow. Death on the twelfth day, preceded by fever and pain in the right

* Nicolai Massæ, Anatomiæ Liber Introductorius. Venetiis, 1559, p. 56.

† Ephemerid. Germanic. Curios. Dec. I. Ann. II., p. 198. Jenæ, 1671.

‡ Meekren, Observationes Medico-Chirurgicæ. Amstelodami, 1682, p. 23.

§ Ibid. p. 38.

hypochondrium. Inflammation of the surface of the liver to nearly the extent of a hand's breadth.

Case V. *—Compound fracture of the sinciput, from a fall from a height; stupor, loss of sense, and vomiting. In a few days recovery of the mental faculties, then fever and pain in right hypochondrium; on the eleventh day rigors; on the fifteenth trepan applied; sixteenth, jaundiced, frequent rigors, and death. Nothing unusual in the viscera of the chest; tubercles on the surface, and abscess in the substance of the liver,

Case VI.†—Compound fracture of the occiput without any bad symptoms; did well until the eightieth day, when an attempt being made to remove a small portion of bone adhering to the dura mater near the lambdoid suture, rigors and fever were excited, pain in the right hypochondrium, bilious vomiting, and death on the third day subsequently. Thickening and inflammation of the dura mater, with effusion on its inner surface. Nothing unnatural in the chest; large abscess in the liver.

Case VII.‡—Compound fracture of the right

* Pacchioni Antonii Opera, edit. 4to. Romæ, 1741, p. 63.

† Ib. p. 64.

‡ Mémoires de l'Academie Royale de Chirurgie. Tome I. edit. 12mo. Paris, 1743, p. 322.

parietal bone from a fall; no loss of sense; bleeding from the nose and ears. Rigors with stupor after the tenth day; pain in right hypochondrium, increasing fever with irregular shiverings. Death on the seventeenth day. Abscess in the great lobe of the liver.

*Case VIII.**—Nature of the injury not stated, but three crowns of the trepan were applied. Abscess on the anterior surface of the liver, containing seven ounces of pus.

Case IX.†—Wound penetrating to the dura mater which in two months had so far healed as to allow the patient to return to his work as a labourer. In a few weeks inflammation of the integuments of the head, with constitutional disturbance and yellowness of the skin, came on, terminating in death, upwards of three months from the receipt of the injury. No morbid appearances within the cranium; Abscess on the convexity of the liver immediately beneath the peritoneal coat.

Case X.‡—The injury of the cranium not par-

* Mémoires de l'Academie Royale de Chirurgie. Tome IX. Paris 1757, p. 140.

† Id. p. 142.

‡ Id. Tome IX. p. 152.

ticularly described, but the trepan was applied; fever supervened; the skin became of a yellow colour; pain and swelling took place in right hypochondrium; fluctuation was perceived, a puncture made, followed by a discharge of pus. Death six days after the puncture, which had opened an abscess of the liver.

*Case XI.**—Starred fracture, with depression of the right parietal bone; stupor; trepan applied; fever and delirium, yellow colour of the skin, pain in the right hypochondrium; increase of fever, rigors. Death on the ninth day after the operation. Several abscesses in the liver towards its connection with the diaphragm.

Case XII.†—Fracture of the parietal and temporal bones; four crowns of the trepan applied; fever; jaundice; laborious respiration. Death on the eleventh day after the operation. Liver seemingly larger than natural, and gorged with blood; its surface was inflamed, but at no point in a state of suppuration.

Case XIII.‡—Small contused wound on the left parietal bone, with bleeding from the nose and

* Memoires de l'Academie Royale de Chirurgie. Tome IX. p. 168.

† Id. p. 169.

‡ Pouteau, Mélanges de Chirurgie. Lyon, 1760, 8vo. p. 135.

ears, and loss of sense, but of which he shortly recovered; the wound healed in a few days. On the sixteenth, a violent attack of fever with severe pain in the head; next day the wound was found open, a state of stupor ensued, and death on the eighteenth. Bone not fractured; no disease within the cranium; liver of a deeper colour than natural, and in the great lobe, a cavity, the size of an egg, filled with a sanies-like fluid.

*Case XIV.**—Compound fissure of the os frontis from a blow from a stone, which knocked the patient down, but he immediately rose and pursued the person who threw it. Fever and rigors towards the eleventh day; death on the fourteenth. Dura mater injured, pus between it and the pia mater. Tubercles and abscesses in the lungs.

Case XV.†—Compound fracture of the sinciput, from a stone thrown, the patient being knocked down and somewhat stunned; after the fourteenth day fever occurred; delirium and death on the twenty-fifth. Some sharp particles of bone sticking in the dura mater; the lungs very red, contained small abscesses full of pus.

Case XVI.‡—Wound on the left side of the sinci-

* Morgagni, De Causis et Sedibus Morborum. Venetiis, 1761. Tomus II. p. 285. Epist. 51—17.

† Id. 51—18.

‡ Id. 51—19.

put exposing the bone, from a blow with a stone; the patient fell, but afterwards walked to the hospital; did well until the twentieth day, when violent and repeated paroxysms of fever came on; cough and purulent expectoration. A large abscess observed on the back the day before the patient's death, which took place two months after the accident. Caries of the bone, separation of the sagittal suture, dura mater of a livid colour, and several particles of bone adhering to it, a small abscess under it in the substance of the brain; tubercles and numerous abscesses in the lungs; no connexion between the abscess of the back and wound of the head.

*Case XVII.**—Wound of the soft parts over the left side of the sinciput, from a blow with a stick, without any symptoms. Came by himself to the hospital. Bone not fractured, and remained well for fourteen days; then rigors, fever, pain in the abdomen, difficult respiration, cough, and purulent expectoration. Death on the twenty-second day. No lesion of the bones of the cranium or brain. Both cavities of the chest full of pus; tubercles and abscesses in the lungs and in the liver.

Case XVIII.†—Laceration of the scalp covering the os frontis, from a fall; coma; bone

* Morgagni, De Causis et Sedibus Morborum. Venetiis, 1761. Tomus II. Epist. 51—20.

† Cheston, Pathological Observations and Inquiries. Gloucester, 1766. p. 36.

appeared to be uninjured. On the third day a large portion of the scalp was cut away, and the arteries suffered to bleed plentifully; upon this, all the symptoms abated, and on the eighth day the lad was able to walk about the room. He did well until the end of the third week, when pain was complained of in the abdomen, which appeared swollen; the wound became unhealthy; and he died the end of the fifth week. Dura mater sloughy, and pus on its surface, substance of the brain sound: serous fluid in the abdomen, several distinct abscesses in the liver.

*Case XIX.**—A young woman, who had laboured under pain in the head, epilepsy, and gutta serena for a year and a half, admitted into St. George's Hospital, had a triangular incision made behind each ear, and the additamentum squamosum laid bare about the size of a sixpence, by erasing the pericranium. On the tenth day she had violent rigors; on the twelfth, fever and pain in the side; and on the seventeenth, she died.

On opening the skull, a little thick matter was found on the dura mater immediately under the part where the external incision had been made; that membrane seemed also thickened. A little higher was some pus upon the cerebrum. The lateral ventricles were distended with serum to the

* Cheston, p. 142.

quantity of half a pint in each. All the viscera in the thorax and abdomen were sound, except the liver, in which there was a very large abscess.

*Case XX.**—Compound fissure, about the middle of the frontal bone, from a fall; no symptoms of extravasation; patient had got nearly well, when an attack of fever took place; symptoms of inflammation of the lungs, delirium, stupor, pain in the right side, and death on the fourth day of those new symptoms. Dura mater of a yellowish colour. Right lung in a state of suppuration; three small abscesses in the liver containing a brownish pus.

Case XXI.†—Lacerated wound, by a musket ball, of the integuments and pericranium covering the anterior part of the right parietal bone, which was contused, but not fractured. No unpleasant symptoms existed, and the patient went on in the most favourable manner, until the seventh day, when febrile symptoms appeared. These became attended with exacerbations, assuming the character of paroxysms terminating in perspiration, with rapid, feeble, irregular pulse, and great debility; collections of matter formed in the vici-

* Hautesierk, Recueil d'Observations de Médecine des Hopitaux Militaires, Paris, 1772. 4to. p. 344.

† Schmucker, Chirurgische Wahrnehmungen. Erster Theil. Berlin, 1774. p. 55.

nity of the wound. By the eighteenth, there were two paroxysms of fever daily, with extreme exhaustion; the wound discharging freely. The patient died suddenly, on the twenty-ninth day of the disease, under rapidly developed symptoms (within the last twenty-four hours) of inflammation of the chest.

The surface of the injured bone rough, and the corresponding portion of the dura mater of a dark colour; a small quantity of pus in the posterior part of the superior longitudinal sinus, and a firm fibrinous coagulum in the anterior part; the inner surface of the dura mater besmeared with puriform matter; effusion between the tunica arachnoidea and the pia mater. Both sacks of the pleuræ filled with a turbid yellowish serum, having numerous portions of coagulable lymph floating in it; a coating of the same lymph on the pleura pulmonalis and costalis; numerous small ulcerations on the surface of the lungs, the inner substance of which was almost destroyed, and in some places converted into a brownish sanies; the pericardium was filled with fluid. The convex surface of the great lobe of the liver was inflamed.

*Case XXII.**—Two sabre cuts on the head, one

* Dessault, Journal de Chirurgie. Tome II. Paris, 1791. p. 11.

dividing the external table of the os frontis. Being unattended with pain, the patient paid little attention to them for some time. Eight days after the accident, he came to the Hôtel Dieu. On the sixteenth day he was attacked by vomiting, with increase of fever, agitation, and delirium. Death took place on the twenty-fifth. Fissure of the inner table of the skull where the external had been divided by the sabre; a greenish matter on the surface of the brain. Numerous small ulcerations in the liver, the entire surface of which was covered with a thin layer of purulent matter.

*Case XXIII.**—Seven sabre cuts, all on the parietal bones, but chiefly the left; two of these divided both tables of the skull. On being picked up on the field of battle, he was in a state of stupor, but soon recovered himself, and walked unsupported to be dressed. Did well until the twenty-fourth day, then rigors, fever, paralysis of the right side, hurried respiration, and death on the twenty-ninth. Effusion of pus beneath the dura mater, which was penetrated by a splinter of the inner table of the skull. In the left cavity of the chest a large collection of matter; the surfaces of the posterior part of the lung, of the pericardium, and diaphragm, covered with a thick purulent membrane; the lung bore the appearance of inflammation. The spleen large and softened.

* Klein, Chirurgische Bemerkungen. Stuttgart, 1801. p. 114.

*Case XXIV.**—Several sabre cuts on the head, two on the right parietal bone, extending to the diploe; one on the occiput, chiefly on the right side, cleaving the bone. Knocked down by the first stroke, he immediately sprung up, and then received the others. The patient walked about the ward, and did well until the fifteenth day, when the pericranium separated from the bone; fever took place, with sense of heat and weight in the chest, and pain in the region of the liver. On the sevénteenth, extreme exhaustion, hurried breathing, dilated pupils, stupor, great restlessness, and death. Dura mater gangrenous to the extent of a dollar, its inner surface on the right side lined with coagulable lymph, and gelatinous effusion between the tunica arachnoidea and pia mater. Spleen twice its natural size, soft and full of blood. The liver large, and of a dark colour, had a number of small ulcerations on its convex surface; one large, and several smaller abscesses in its substance. The left cavity of the chest natural; the right nearly filled with purulent matter; the lung covered with a thick false membrane, and in the superior lobe a small abscess.

Case XXV.†—Wound from a blow with a stick of the soft parts over the left parietal bone, which was denuded, but not fractured. Was not knocked down, and walked two leagues afterwards. Did well for some days; but on the tenth, rigors, fever,

* Klein, Chirurgische Bemerkungen. Stuttgart, 1801. p. 120.

† Ansiaux, Clinique Chirurgicale. Liege, 1816. p. 41.

and death on the fifteenth. Abscess in the right hemisphere of the brain. A number of white spots on the convex surface of the liver, which, on being cut into, gave issue to a quantity of purulent matter.

*Case XXVI.**—Contused wound and exposure of the pericranium, in a boy aged 15, from a fall from a tree. Did well for ten days, going about as usual. On the eleventh, fever, delirium, and vomiting; on the thirteenth, severe pain in the chest, and bloody expectoration. On the fourteenth, examination of the wound showed the pericranium raised and detached; it was cut away, and a small fissure of the bone discovered. Trepan applied, and pus discharged. Death on the seventeenth day. Pus on the surface of the dura mater and on that of the brain. An abscess of considerable size in the middle lobe of the right lung.

Case XXVII.†—Sabre cut, carrying off a portion of the external table and diploe of the right parietal bone, the internal table uninjured. Did well for ten days, then redness and tumefaction of the edges of the wound; fever, pain in the right hypochondrium, rigors, cold sweats, and death on the thirtieth day. Pericranium violently inflamed; the corresponding part of the dura mater red and tumefied; brain healthy. A quantity of purulent

* Ansiaux, Clinique Chirurgicale. Liege, 1816. p. 45.

† Larrey, Mémoires de Chirurgie Militaire. Tome IV. Paris, 1817. p. 232.

matter in the cavity of the abdomen, derived from an enormous abscess in the liver.

*Case XXVIII.**—Sabre cut, carrying off a thick slice of the right side of the occipital bone, the internal table being spared. The dragoon did not fall from the blow. Did well for fifteen days, then fever, inflammation of the edges of the wound, pain in the head and right hypochondrium; and death on the thirty-seventh day. Violent inflammation of the pericranium, bone, and dura mater; an abscess of considerable size in the liver.

Case XXIX.†—Sabre cut on the right side of the os frontis, dividing the outer table. First ten days, no bad symptoms, then general disturbance, with stupor, depression, pain, and tumefaction of the right hypochondrium, irregular shiverings and nausea. Trepan applied, and gave vent to some matter. Died, under all the symptoms of adynamic fever. Pus on the surface of the dura mater; inflammation of this membrane and the pericranium. A very large abscess in the liver.

Case XXX.‡—A boy, aged 14, died of an

* Larrey, Mémoires de Chirurgie Militaire. Tome IV. Paris 1817. p. 233.

† Id. 234.—Larrey remarks, p. 237, that in none of the three cases here given did the patient fall at the time of receiving the blow.

‡ Mr. Mayo, Med. Chir. Transactions. Vol. XI. p. 104.

affection of the brain, connected with fracture of the skull. He survived the injury about three weeks. Four days after the accident, a joint of one finger and one ankle joint appeared swollen and painful; the swelling extending some distance above and below the affected joints: there was no discolouration of the surface, which might lead to the supposition that these parts had been bruised. The swellings suppurated, and were opened previously to the boy's death. On dissection, it was ascertained that the abscesses, which had been extensive, did not communicate with the joints in their vicinity, the capsules of which contained no excess of fluid. On opening the articulation of the affected finger, the extremities of the bones were found wholly bared of cartilage; and on exposing the cavity of the ankle joint, the surfaces of the astragalus and tibia were found almost wholly stripped of theirs likewise.

*Case XXXI.**—Wound, from a fall whilst drunk, over the left parietal bone, which was denuded, but not fractured. The patient was not stunned. On the eighth day had an attack of erysipilas, but was apparently recovering from this, when on the twenty-third day, the abdomen became tense and painful, the conjunctiva and skin of a yellow colour, the pulse frequent and hard, with great

* Ephemerides Médicales de Montpellier. Tome VII. 1828. p. 216.

distress and difficult respiration. Pleuro-pneumonia of the right, and pleurisy of the left side of the chest, were detected by auscultation the day before death, which took place on the twenty-sixth. Pericranium in a state of suppuration and detached at the seat of the wound; dura mater healthy; arachnoid thickened with subjacent effusion; brain injected. Traces of recent peritonitis; intestines covered with albuminous effusion; twelve or fifteen yellowish white spots on the surface of the liver, caused by as many subjacent collections of matter; the cavities were in some instances lined by a membrane, in other places pus could be squeezed from the incised surface. Several pounds of purulent serosity in the right cavity of the chest; in less quantity, and less turbid in the left.

*Case XXXII.**—T. B. æt. twelve, was admitted into St. Thomas's Hospital, on the 26th of October, 1827. Ten weeks previously, he received a blow on the forehead, which was followed by an abscess that was opened, and found to contain several ounces of pus. From this he recovered, and a cicatrix only was left at the part. Three weeks before admission he had a fit, of an epileptic character, and to this succeeded incomplete paralysis of the left side. When admitted, his limbs were shrunk, his face pale, he had a peculiar wildness of the eye, and a peevish expression of counte-

* Lancet, February 9th, 1828.

nance, mingled with anxiety. He was restless and irritable, screaming when spoken to or roused, and the only reply that could be obtained from him was, "my head aches," at the same time lifting his hand to his forehead. The pulse was small, 120; the skin cool in general, but the scalp hot; the pupils, especially the right one, much dilated; the bowels were much relaxed, several fetid motions having passed daily, unconsciously; the urine also dribbling away. He could not move the left upper or lower extremity, and pointed to any thing which he wanted rather than ask for it. The head was shaved, leeches applied, &c. and mercurial ointment ordered to be rubbed in every night; this was continued until the 12th of November, when the paralytic affections had somewhat diminished.

Nov. 25th.—Has passed a very restless night, and is exceedingly irritable. There is a distinct puffiness over the seat of injury, at the part where the cicatrix was described, and it extends to the left eye-lid; upon close inspection, it is apparent that there is an accumulation of fluid in the cellular tissue; the skin is not red, but there is a tenderness on pressure. The pulse continues small and quick; he can move both extremities with equal facility; the pupils are dilated, but act somewhat more freely; the pain in the head continues, and the bowels are regular. 26th. There is great peevishness manifested to-day; the boy cries on

the slightest disturbance. The swelling of the scalp is greatly increased, and the veins of this part are seen much distended, even so as to render their minute branches perceptible. A lancet was plunged into the swelling on the forehead, when a continuous stream of blood (equal to that which issues from a free opening of the median-basilick vein) flowed uninterruptedly for more than a minute, when it ceased spontaneously. No pus escaped from the puncture, and the swelling was unreduced; a deeper incision, or puncture, was made, and about half an ounce of cheesy matter exuded. 30th. The wound of the forehead has healed; it discharged a small quantity of pus for a day or two. 2d of December. There is evidently some improvement; he says that he has less pain, and he is stronger; his appetite is improved. 12th. From the date of the last report, nothing material has occurred; the pulse has been variable with respect to its quickness, so also with respect to the pupils and amount of pain in the head. It is remarkable, however, that when the pain is violent, then the pupils are dilated, and vice versâ. 18th. A further collection of matter was discharged from the forehead, and also from the angle of the left jaw. The bowels at this time were very much relaxed. 24th. Is much reduced; the purging continues. 31st. He died this morning, without any marked change having taken place in the symptoms.

The body was examined on the 1st of January. The scalp formed the anterior boundary of the frontal sinuses, the bony wall having been absorbed; there was very little pus found in the cavities, and the frontal bone was carious to some extent around. It was almost perforated in many places, and completely in one, which opened into the skull. The adhesions between the dura mater and calvarium were observed to be much firmer in the course of the longitudinal sinus, and in the vicinity of the injury. Numerous red vessels were observable in the dura mater, and over the sinuses it was very vascular. There was no pus between the dura mater and bone, at the seat of injury, notwithstanding that the perforations in the bone at this part were of sufficient size to admit of the introduction of the point of the dissecting forceps. The tunica arachnoides was slightly opaque; the vessels of the pia mater were loaded with blood.

The longitudinal sinus was almost filled with thick pus, and lined with a layer of organized lymph, such as we see forming the cyst of a vomica. There was a small abscess on the surface of the right hemisphere of the cerebrum, contiguous to the sinus; and upon cutting into it, it was found to extend some way into the cerebral substance. There was no distinctly traceable communication between the abscess and the sinus, but many of the veins of the pia mater, at their entrance into the sinus, and also for some distance,

were filled with pus. The left lateral, the inferior longitudinal, and the left inferior petrosal sinus, were quite distended with pus. On the right side, the only sinus so filled was the lateral, and a portion of firm lymph had been effused where the sinus makes its turn to get on the temporal bone; this lymph had acted as a plug, preventing the pus from extending farther. On the left side, the sinus was filled with pus as far as the foramen lacerum basis cranii, and probably the internal jugular vein, but this was not examined. In the left lobe of the cerebellum was a large abscess, the pus in which resembled that in the sinuses, but there was no connexion found between the two.

There were several abscesses in the lungs, and a muco-purulent secretion issued from the bronchi; the largest vomica was in the upper lobe of the right lung. An abscess was found in the left kidney. The bowels were contracted so as to appear very small, and there were a few minute ulcers to be observed on the mucous coat of the ileum and colon.

*Case XXXIII.** A gentleman, falling from his horse, pitched on the side of his head, and remained insensible until the time of his death, on the 23d day. On examination, there was found extensive

* Rose, in Med. Chir. Trans. Vol. XIV. P. 276.

fracture of the base of the cranium; rupture of the brain; and pus between it and the pia mater. Liver and spleen studded with soft tubercular masses consisting of lymph mixed with pus, and circumscribed abscesses of different sizes.

From a consideration of these cases, it appears that affections occurring as secondary to injuries of the head were observed, in twenty-one, seated in the abdominal viscera*; in five, in the thoracic; and in six, in the abdominal and thoracic conjointly. That they consisted of collections of pus in the liver and in the lungs; and of effusions of pus and sero-purulent fluid into the cavities of the chest. That combined with some of these, there was further observed, a deposition of purulent matter, in one case, in the substance of the heart; in one, in the kidney; in one in the spleen; and in one, under the integuments of the back; in one, albuminous effusion on the surface of the intestines; and in one, inflammation of

* Although these thirty-three cases show the nature of the secondary affections succeeding to injuries of the head, they cannot be considered as offering a fair representation of the comparative frequency of the occurrence in the abdominal and thoracic viscera. Previous to the time of Morgagni, abscess of the liver subsequent to such injuries had in a measure engrossed attention, and accordingly it will be seen that, out of thirteen cases from writers previous to his time, in twelve, disease of the liver is noted, and in two of these only, the condition of the thoracic viscera mentioned.

the liver, without the formation of matter. In two cases, inflammation of the surface of the liver without suppuration was the only morbid appearance observed. In one case, an affection of the joints, and the deposition of pus into the cellular substance around them occurred without any disease of the abdominal or thoracic viscera having been noted.

The injury which the head had sustained in these cases consisted, in twenty-three, of fracture or fissure of the cranium, in all compound, with the exception perhaps of two, where the circumstance is not stated. In ten, the osseous covering of the brain was neither fractured nor fissured; but with the wound of the soft parts, which uniformly existed, there had been in several a portion of the outer table and diploe sliced off, whilst in all, the bone seems to have been exposed. The wound of the soft parts was in several instances of trifling extent, and had, in some nearly, and in one actually, healed over when the unfavourable symptoms commenced; but in these cases disease of the bone seemed to have remained, as the pericranium now became detached. With regard to the morbid appearances within the cavity of the cranium, it will be sufficient to state, that whilst these vary considerably, in several there was inflammation simply of the dura mater, without any appearance of purulent matter, and that in three instances no diseased changes whatever were ob-

served. In short, the only circumstance these thirty-three cases have in common is a wound of the soft parts.

The general course of these cases seems to have been this, and in the great majority, twenty-four, it is so stated, that the patient for some time did well, having recovered his consciousness, where this had been lost, which was frequently not the case, was free from fever, and the wound suppurating kindly; that afterwards unfavourable symtoms took place, consisting of fever, rigors, nausea and vomiting, delirium, yellow colour of the skin, and sometimes, shortly before death, pain in the right hypochondrium, or affection of the chest. There was some difference in the period at which these symptoms appeared; but of nineteen cases, the earliest of which was the seventh, and the latest the twenty-fourth day, the average was between the thirteenth and fourteenth day after the accident. The average period of the fatal termination of the same cases was between the twenty-second and twenty-third days, the earliest being on the fifteenth, and the latest on the thirty-seventh subsequent to the injury. In one instance, not included in the above number, the patient did well until the eightieth day, when, on an attempt being made to remove a portion of bone adhering to the dura mater, general disturbance took place, and death in a few days. In another exception to the more ordinary pe-

riods, the same event occurred four months and a half after the receipt of the injury.

From the preceding summary, I think it will appear, that abscesses and inflammations occurring in the viscera of the abdomen and chest, after injuries of the head, present a resemblance to similar affections succeeding to wounds of other parts of the body, sufficient to justify the inference, that they arise from the same cause. That cause, I ventured to suggest, might be inflammation of the veins,—the consequent production of pus in their cavities, and the entrance of this into the circulation. And, in accordance with this view, we find that in the only cases in which the state of the part is described, (number 21, from Schmucker, and number 32, which occurred in St. Thomas's Hospital) inflammation of the superior longitudinal sinus existed, its cavity, in both instances, containing purulent matter, in the one, with a firm, fibrinous coagulum, and in the other, with a layer of organized lymph on its inner surface. But we need not confine ourselves to inflammation of the sinuses within the cranium in cases of this description. It must be evident, that this process taking place in the numerous veins which ramify between the two tables of the skull, and in those distributed to the soft parts externally, will be attended with similar consequences to those which succeed to phlebitis in other parts of the body.

With respect to inflammation of the cerebral sinuses, after injuries of the head, I may here mention, that Schmucker * relates another case, where a patient having compound fracture of the os frontis, did well for ten days; unfavourable symptoms then occurred, and he died on the eighteenth, having for the last two days complained of pain in the right side. In this instance, a spiculum of the inner table of the skull was found penetrating the superior longitudinal sinus, which, in its anterior part, contained an atheromatous looking matter, and posteriorly, pus mixed with blood and polypous concretions. The condition of the abdominal and thoracic viscera is not described; but it is subsequently remarked, that the inflammation of the liver in this case would undoubtedly have ended in suppuration, had not death intervened. †

* Chirurgische Wahrnehmungen. Erster Theil, p. 160.

† Inflammation of the cerebral sinuses unconnected with external injury, occasionally takes place. In the following case which recently occurred, I examined the body of the individual who was the subject of it.

A young lady, about 19 years of age, was attacked three weeks before her death when in apparent health, with the ordinary symptoms of catarrh, limited to the mucous membrane of the nose. In a few days, pain took place over the region of the frontal sinuses, with some swelling and puffiness in the same situation; fluctuation was then perceived, and on a puncture being made, some highly offensive purulent matter was evacuated. The swelling subsided, and the discharge gradually diminished, but the general symptoms continued and increased. There was pain in the head, but neither constant

AFFECTIONS OF THE VISCERA, JOINTS, EYE, CELLULAR SUBSTANCE, AND SKIN AFTER LABOUR.

In examining the bodies of women who died after parturition, of what he described as inflam-

nor very severe; the patient was restless, had occasional fits of chilliness almost amounting to rigor, followed by re-action, during which, the pulse rose to 120. About the middle of the second week, she was attacked with numbness of the right hand and foot, which in two or three days terminated in complete paralysis of the side of the body, with difficulty of swallowing, and impediment in the articulation, but with perfect consciousness remaining, as evinced by signs. At this time also, the skin generally, and the conjunctiva of the eye, became of a yellow colour. About a week after the paralysis had commenced, the tongue, which had hitherto been moist and tolerably clean, became suddenly dry and black, and she died on the following night. The patient had been attended by Dr. Macleod and Mr. North, at whose request I examined the body, and from whom I have derived the foregoing particulars.

The body presented all over its surface, the yellow hue above alluded to. There was no tumefaction in the neighbourhood of the lancet wound in the forehead, which indeed was nearly healed. On turning down the scalp, the bone in the situation of the frontal sinuses was found to be denuded of its pericranium; its surface rough to the extent of about half a crown, and smeared over with a thin layer of purulent matter. On raising the calvarium, the first appearance which attracted attention, was a large foul ulcer of the dura mater, beneath the middle of the frontal bone, it was triangular in shape, and nearly equilateral, the base about an inch and a half in breadth, extending in a transverse direction a little above the orbits,

mation of the uterus, Dr. Clarke * found pus contained in the veins of that organ. Mr. Wilson

the apex pointing upwards and backwards over the site of the longitudinal sinus. The surface of the ulcer was of an ash colour, with a dark sloughy looking spot, as large as a sixpence at the apex. The inner surface of the skull-cap corresponding with the ulcer, was of a dull white colour, and slightly roughened. The contrast in appearance with the surrounding parts, rendered the figure and extent of the diseased portion of bone readily perceptible to the eye. On reflecting the dura mater, the surface of the arachnoid membrane enveloping the left hemisphere of the brain, was found to be covered with a layer of lymph and purulent matter, the membrane itself being thickened and opaque. On slitting open the longitudinal sinus, its parietes were found thickened, and it was filled with pus and lined with a layer of coagulable lymph through its whole length. The coating of lymph terminated at the division into the lateral sinuses; but, on removing a fibrinous coagulum from the right lateral sinus, this broke, and pus flowed from its centre. A portion of the os frontis over the root of the nose was now removed so as to expose the frontal sinuses, which were found to be denuded, and to contain purulent matter. The liver was perfectly healthy. The thoracic viscera were not allowed to be examined.—In this case inflammation, originating in the membrane lining the frontal sinuses extended to the bone; this was followed by separation of the pericranium externally, and by that of the dura mater internally with ulceration of its surface, upon which supervened inflammation of the superior longitudinal sinus, and of the arachnoid membrane.

A case of suppuration within the left lateral sinus, connected with disease of the temporal bone and preceded by purulent discharge from the ear, has been briefly related by Dr. Abercrombie, in his work on Diseases of the Brain, p. 49.

* Practical Essays on the Management of Pregnancy. London 1793. p. 70.

described * the morbid appearances in one case, and alluded to two others, in which inflammation of these vessels extending to the cava, had taken place subsequent to labour. Since then, inflammation of the uterine veins spreading to the adjoining trunks of the venous system, has occupied the attention of Dr. Davis †, M. Velpeau ‡, and others.

Inflammation, then, of the veins of the uterus may be regarded as by no means of unfrequent occurrence; and although some of those who have treated of the subject have had chiefly in view the primary local affection and morbid appearances, yet there is sufficient evidence to show that inflammation and suppuration of these veins also, are followed by various secondary affections.

Case I. An abscess was found in the liver containing an ounce of pus, in the instance described by Mr. Wilson, where inflammation had extended along the uterine and spermatic veins to the cava.

Case II. M. Louis § relates the history of a patient who was admitted into the Hospital on the 3d of January 1826, twenty days after delivery;

* Trans. of a Soc. for the Improvement of Med. and Chir. Knowledge. Vol. III. p. 65.

† Med. Chir. Trans. Vol. XII. p. 419.

‡ Archives Générales de Médecine. Octobre 1824. p. 220.

§ Id. Mars 1826. p. 338.

labouring under great debility and pain in the right thigh, with a tongue hard and dry, intense thirst, sickness, and vomiting, and a countenance expressive of anxiety. On the 6th the debility increased, the eyes and skin became of a deep yellow colour, and the countenance dejected. She died on the 12th. The inferior lobe of the right lung was of a red livid colour, on its surface was a false membrane, the size of a five franc piece, covering a portion of somewhat firm lung, in which were two small abscesses filled with healthy pus, and a third, containing a sanious fluid, existed in the same lobe, which was elsewhere elastic, and neither gorged nor hepatized. The right spermatic vein contained pus through its whole length, and its coats, greatly thickened, were lined internally by a false membrane.

Case III. In the following instance, that unusual event, gangrene of the lung, succeeded to inflammation and suppuration in the left spermatic vein. The case occurred in a patient in the St. James's Infirmary under the care of Mr. Baker, who obligingly gave me an opportunity of examining the parts after their removal from the body, and from whose notes I have taken the account.

Ann Cromer, æt. 42, a healthy woman ,being taken in labour, on the 22d of July, was attacked with profuse uterine hemorrhage; this was found to be occasioned by the placenta being attached

over the os uteri, which rendered it necessary to introduce the hand, and deliver by turning. Notwithstanding, she lost a large quantity of blood, which occasioned alarming exhaustion. On the evening of the following day, her pulse rose to 140, with head-ache, heat of skin, and intolerance of light; on that of the 24th she had a slight rigor, and again on the 25th another exacerbation of fever, the pulse 140, and the breathing hurried. For some days subsequently, she had less fever, and without evening exacerbations; the pulse ranged from 100 to 120; the last portion of urine (which it was necessary to draw off by the catheter) had a semi-purulent appearance, with a peculiar and unpleasant smell. No pain was felt on pressure of the abdomen, although some mischief was evidently going on. On the 2nd of August, her breathing had again become much oppressed, with slight cough and no expectoration. The next day, after close questioning, she admitted that she had some pain in the left side of the chest, and sixteen ounces of blood were taken from the arm. On the 4th the pain was relieved, and on the 5th entirely removed, but the pulse remained at 120, the skin was hot and dry, there was expectoration of a little frothy mucus, and a disagreeable smell about her. On the 6th there was less fever, she was excessively weak, the features were sharp and anxious, and the breath was very offensive. On the 7th the expectoration was more free, thick, and purulent, and although the linen of

her bed had been changed, the unpleasant smell was not diminished, and was evidently caused by her breath. Death took place on the 9th, eighteen days after delivery.

Dissection.—On opening the chest, an extremely fetid odour issued from its left cavity, in the lower part of which were contained between three and four pounds of a turbid serum mixed with portions of coagulable lymph. Superiorly the lung was glued to the parietes of the chest, by recent loose adhesions; inferiorly, the pleura pulmonalis, and the corresponding pleura costalis were covered with a dense coating of coagulable lymph. In addition to this, there was on part of the surface of the inferior lobe of the left lung, a quantity of the same substance in a loose flaky form, on removing which, there presented itself a portion of the lung in a state of complete gangrene; this, about the size of a walnut, formed a black pulpy looking mass, of insufferably fetid odour, was contained with some dark coloured fluid in a sort of cavity formed by its separation from the sound lung. On making a section of the parts, passing through the gangrenous slough, one half of this fell out of the cavity in which it was situated, the other remaining attached to the parietes by a few thread-like adhesions. The cavity itself was lined by a layer of coagulable lymph having the appearance of a uniform membrane. Immediately beyond this, the substance of the

lung was somewhat livid in colour, but seemed to have undergone little change in its texture; elsewhere, it was quite healthy. On cutting through the uterus, which was of the usual size a month after delivery, a few drops of pus flowed from one of the divided sinuses, which, being traced, was found to communicate with an abscess in the left ovarium; the spermatic vein of this side was now observed to be diseased, and on cutting it open at its lower part, was found to contain pus; its coats were much thickened, and its inner surface was lined with a layer of coagulable lymph, which nearly obliterated the cavity. These diseased changes occupied the whole course of the vein to its junction with the emulgent, the coats of which were also thickened, and the cavity lined with lymph. The vena cava was perfectly healthy. No affection of the peritoneum, or effusion into its cavity, existed.*

* Whilst this paper was passing through the press, I have had an opportunity of observing the following case: Elizabeth Rogers, æt. 25, was received into the Middlesex Hospital under the care of Mr. Mayo, having been delivered sixteen days previously, after a natural labour, of her second child. For some days she had done well, but was then attacked with a severe rigor, followed by fever and suppression of the lochia, upon which, in a few days, erysipelas had supervened, and it was the aggravation of this which led to her removal to the Middlesex from the Queen's Lying-in Hospital, where she had been confined. On her admission, the left fore-arm and hand from the knuckles to the elbow were greatly swollen, somewhat red and painful, and, on the outside of the former near its middle, fluctuation was felt over an extent of several inches, a sensation

In adverting to an affection of the joints taking place subsequent to labour, I consider it necessary to offer some prefatory remarks.

which was again recognized on the back of the hand. The back of the right wrist was in a similar manner affected with swelling, moderate redness, and a more obscure sense of fluctuation. The integuments of the right leg and foot were in a state of violent inflammation, being generally of a vivid, and in some places of a livid red colour; on several parts of the leg incipient vesication existed; the swelling was moderate, and there was little tension; no evidence of effusion into the cellular substance could any where be detected. The woman had a haggard, anxious, and sallow countenance, the tongue was dry and brown, but bright red when moistened; the pulse was frequent, voluminous, and soft; there was no tenderness of the abdomen.

Between two and three ounces of pus were evacuated by puncture, from the left fore-arm, a tea spoonful or two from the back of the hand, and a few drops from the right wrist. Gangrene of the integuments of the leg took place, and the patient died in three days after she came into the Hospital.

On examination of the body, the peritoneum covering the uterus, as well as elsewhere, presented its natural appearance. A small collection of matter, about a tea-spoonful in quantity, was found between the neck of the bladder and symphysis pubis. An incision made into the uterus on its anterior surface shewed no morbid changes in its thickened parietes or in its venous sinuses at this part, and, from particular circumstances, a further examination of the organ was not made. The left spermatic vein contained pus and sero-purulent fluid in its lower half; its coats were here opaque and slightly thickened, the internal surface had lost its polish, but there was no appearance of lymph upon it. The vein contained no blood, and its coats at the upper part towards the left renal vein presented their natural appearance. The abdominal viscera and lungs had a healthy appearance. The surface of the heart over the left auricle presented numerous small spots of ecchymosis, and was crowded with vessels

The occurrence of a disease of the joints in consequence of inflammation and suppuration in a vein simply, has been proved by the cases of Arnold, Brancher, and Dogherty, and its characters established by the examination of the knee-joint in the first mentioned case, the cavity of which was found filled with pus, the synovial membrane inflamed, the cartilages exposed, and the bones laid bare. And it has been further seen, that in the cases of J. R. and Henrius, where effusion of purulent matter into the joints of the hip in the one, and into the shoulder-joint of the other, succeeded to amputation of the leg and of a metatarsal bone, I referred these to inflammation and suppuration of veins in the limbs operated upon.

The fact itself, of an affection of the joints occurring after injuries, has been noticed by several writers. Dr. Hennen * states, that in three instances he had found purulent matter in the hip-joint after amputation of the thigh; and another case of the same nature after amputation below the knee, will be found at p. 272 of his work, headed "Death after Amputation, from disease of the lungs, and a collection of matter in the hip-joint." In a case, related by Mr. Rose, to-

gorged with dark blood: its cavities contained fibrinous coagula. The head was not examined. The joint of the right wrist was healthy.

* Principles of Military Surgery. 2d edition. London, 1820. p. 269.

gether with abscess in the liver and lung, purulent matter was effused into the articulation of the clavicle and sternum, after bruise of the foot and fracture of the fibula*. In another instance, which recently occurred in the practice of M. Lallemand, where abscesses in the liver succeeded to an operation performed for the cure of accidental hypospadias † purulent and pseudo-membranous effusion into the articulations of the right knee, and of the ster-

* Med. Chir. Trans. Vol. XIV. p. 272.

† The wound from the operation had not cicatrized at the time of death, and an abscess was found in the bulb of the urethra.

In the following case, also, the venous structure, the erectile tissue of the penis, was the seat of inflammation. A healthy looking man, 40 years of age, was cut for the stone, under which he had suffered for two years. He did well until the sixth day after the operation, when he was attacked with severe and repeated shiverings, followed by fever, shrinking of the features, yellow colour of the conjunctiva and skin, red, dry tongue, great depression of strength, temporary muttering delirium, oppressed breathing, and death on the fourteenth day after the operation. The surfaces of the inferior lobes of the right and left lungs were covered with coagulable lymph, and there was purulent matter between the former and the diaphragm; numerous depositions of pus had taken place into the substances of both lungs, not collected into foyers, but infiltrated; collections of a similar description in both kidneys; albuminous effusion between the liver and diaphragm, and on the surface of the spleen. "Small, closely approximated phlegmons were found in the erectile tissue of the penis, from the bulb of the urethra, upwards as far as the commencement of the scrotum."—Ephemerides Méd. de Montpelier, Tome I. 1826. P. 126.

num and clavicle of the left side, were likewise present*. And I have already mentioned, at page 87, a case related by Mr. Mayo, where an acute affection of the joints followed fracture of the skull.

It will be inferred from the preceding course of argument, that I regard the disease of the joints, in these several cases, as having been connected with inflammation and suppuration of the veins of the part which had been the seat of mechanical injury. To others, this opinion may seem scarcely warranted by the degree of knowledge which is yet possessed upon the subject; so strong, however, is my own conviction of the reality of such connexion, that, in the following case, where no injury had been sustained, the disease of the joints, and the occurrence of abscesses in different parts of the body, led me to anticipate the existence of inflammation and suppuration of the veins, which anticipation being confirmed by dissection, tends evidently to establish the accuracy of the previous conclusions. The subject of the case was a patient in the Middlesex Hospital, who attracted my attention soon after he had been transferred from the physician's ward to that of the surgeon.

Thomas Griffin, æt. 30, came under the care of Mr. Bell, about the middle of November 1827, with disease of the left knee and right shoulder

* Ephemerides Médicales de Montpelier. Tome VII. Mars, 1828. P. 225.

joints, a collection of matter over the scapula, and another over the sacrum. He gave the following history of his complaints:—Until about six months previously he had enjoyed perfect health, but then, without being able to account for it, he became unwell and feverish, several abscesses formed in the right side of his neck, and he was attacked with rheumatism in all his joints, principally, however, in the left knee and right shoulder. In consequence, he came into the hospital in the month of June, under the care of the physician, and, after remaining five weeks, went out much relieved. On his way home to Norwood, he got wet, and was confined to his bed for five weeks without medical advice. During this time, the left knee became swollen and painful, and he lost the use of the right shoulder-joint, but with little pain in this situation. The swelling on the scapula first appeared at this time, and he re-entered the hospital six weeks after he had left it, as a medical patient: two months afterwards, he was removed to the surgical ward.

The left knee was now much swollen, felt hot, and was the source of great suffering; the leg was somewhat bent, and every attempt to extend it was prevented as much by the stiffness of the parts, as by the excessive pain it occasioned. He had no power over the right arm; but he could move the fore-arm and hand freely; the muscles about the shoulder seemed wasted, but handling

the joint gave no pain. The situation of the abscess on the back was over the inferior angle of the scapula, and that on the sacrum was over the right sacro-iliac symphysis; the integuments covering both of these had a natural appearance. Leeches, issues, moxas, &c., were resorted to locally; and mercury, colchicum, and sarsaparilla, &c., were administered, but without in any degree arresting the progress of the disorder. The knee-joint became more enlarged, a swelling formed over the head of the fibula, which eventually burst, and the head of the tibia was drawn behind the condyles of the femur. The abscesses on the back were repeatedly punctured, the apertures closed, and they ultimately dispersed. In the course of this time the patient's health became progressively worse; a collection of fluid formed over the right shoulder, without pain, which, after the lapse of several months, was punctured, about four ounces of purulent matter evacuated, and the aperture readily healed. On the 13th of August, 1828, the man died.

On examination, the articulating extremities of the left tibia and femur were found completely denuded of cartilage, the same was the case with the glenoid cavity of the right scapula, and the corresponding head of the humerus. The ligaments of the joints were completely destroyed, and the heads of the bones were surrounded by a quantity of thick purulent matter, contained in a

cyst formed by a blended mass of muscular and cellular substance. On cutting down upon the right hip-joint, which was healthy, I opened a vein, out of which grumous pus exuded, and on tracing this vein to the femoral, into which it entered, this last was found twice its natural size, its coats greatly thickened, and its cavity filled with a quantity of coagulable lymph mixed with some pus, slightly tinged with blood. These changes occupied all the branches contributing to form the femoral vein, viz. the saphena, the profunda, and the continuation of the femoral itself as far down as examined about two inches below the origin of the profunda; also the epigastric and smaller branches, and they extended up the external iliac vein *to the entrance* of the internal, where they ceased. Up to this point the diseased vein contained within its cavity the matter already described; here this was in a more loose form, and no impediment existed to its entrance into the common iliac. The coats of this vessel and those of the internal iliac were quite healthy. The iliac and femoral veins of the left side offered no appearance of disease. The right subclavian and axillary veins were in an equally natural state. Nothing unusual was met with in the viscera of the abdomen or chest.

It is to be remarked, that this patient had never complained of the right thigh, or leg; it is true, he had been confined to his bed for the last

eleven months, but retained the power of moving this extremity. Latterly, both this leg and the other had become œdematous. No cause could be discovered for the inflammation of the veins; the limb showed no sign of external violence, with the exception of a small cicatrix on the inside of the leg.

With the permission of Mr. Bell, I place before the Society the vein taken from the subject of this case, stripped of its thickened cellular coat, which formed a solid covering to it, having been the chief cause of its apparent increase in size. It will be seen that coagulable lymph adheres in large quantity to the internal surface of the vessel.

That a violent and destructive disease of the joints takes place in the puerperal state, although not attracting particular attention, the following details will show. Mr. Cheston, in his chapter "On White Swelling", treating of suppuration of a joint, its symptoms, and the danger which attends it, has the following note:—"A critical deposition in the joints is frequently productive of a similar event, (viz. suppuration,) and many women in particular, as Dr. Simpson has observed, have contracted it under the diary fever they are subject to in childbed. Of this, a remarkable case has lately fallen under my care, where the patient was saved by a timely amputation." Unfortunately, the case is not related, and Dr. Simpson's remark is merely this, "several of those

I have had under these cases, could give no account of the rise of the trouble. Some women have contracted it under the diary fever (the weed) they are subject to in child-bed."

The following case detailed by M. Cruveilhier*, in a paper entitled "Usure des Cartilages Articulaires," will be found interesting, both from the period at which it occurred, and the nature of the affection.

A lady, after a severe labour, was attacked by acute articular rheumatism, which successively affected all the joints. The pains diminished, but did not subside; by degrees, the knee-joints became stiff, and she heard or felt a crepitation on the least motion, even in turning in bed. The hip, the shoulder and elbow-joints, those of the wrist and metacarpus, soon became affected in a similar way. Various remedies were tried. Moxas were applied to one knee, and were imagined to afford relief; but at the end of three months, which time they took in healing, the joint was as stiff as before. M. C., who had latterly seen the patient, recommended daily motion of the limb, but the pain which this occasioned could not be borne. It was hoped that anchylosis might put a stop to the sufferings, but this did not take place. At length, in endeavouring by examination of one of the joints of the fingers to ascertain the nature

* Bibliotheque Médicale. Janvier, 1827, p. 80.

of this singular disease, a grating was recognized, and the same sensation being verified in all the affected joints, palliatives only were henceforth resorted to.

On enquiring of Dr. Merriman concerning a disease of the joints in puerperal women, that gentleman informed me that he had seen such cases, but that he did not know of one which had terminated favourably.

In the following case communicated to me by Dr. Robert Lee, no examination of the body was made; but the relation of it here, may, by calling attention to the disease, lead to an examination, in fatal cases, of the affected joints, and also into the state of the uterine veins, with inflammation of which, I believe the affection of the joints to be connected.

"Mrs. A. æt. 30, was delivered on the 1st of June, 1828, after a tedious labour. A portion of the placenta having been retained in the uterus several hours after the birth of the child, a profuse hemorrhage took place before it was extracted. Until the 10th she appeared to recover in the most favourable manner, when a violent febrile attack was experienced, with delirium, and a painful diffused swelling soon after took place around the right knee-joint.

"On the 13th, when I first saw her subsequent to delivery, the febrile symptoms continued unabated, she was delirious, and there was a peculiar expression of wildness in the countenance. The muscles of the face and extremities were affected with tremors. The pulse was 130, and very weak; respiration hurried and anxious, with frequent cough. The skin hot and dry, the tongue was of a glossy red colour and moist. Thirst not urgent; bowels open. There was no sickness or vomiting, the abdomen was uniformly soft, and pressure over it produced no uneasiness. The right knee-joint was stiff and swollen, but the integuments were not discoloured. On the 14th, the symptoms continued, and in the night a painful circumscribed swelling had taken place in the middle of the calf of the right leg, where the integuments were hot, and of a dark red colour. On the 18th, there was a marked remission of all the symptoms, and for ten days it was hoped she would recover. From the 1st of July till the 24th, when she died, (completely worn out with diarrhœa, fever, and the painful affection of the extremities,) the right knee-joint had become much more swollen, and a considerable effusion had taken place into it. Over the right radius and ulna, near the wrist, a painful diffused swelling also took place without discolouration of the integuments, and for a week she suffered excruciating pain in the left ankle and right shoulder

joint, but in neither of these situations, was any thing, except a slight puffiness to be perceived."*.

Upon the connexion of this affection of the joints in puerperal women with inflammation of the veins, there is an appearance of direct evidence in two of the cases related by M. Velpeau, in his paper on Phlegmasia Alba Dolens, although the description is somewhat incomplete. In one of these, death took place on the sixtieth day after labour, in the other, on the twenty-sixth, under great constitutional disturbance and exhaustion. In both, purulent matter was contained in the hypogastric and femoral veins. In the first case,

* Since this Paper was read to the Society, an instance of destructive disease of the knee joint consequent to delivery, has come under my observation. The patient had been confined six weeks previously, being then in perfect health; ten days after this event, and preceded by slight symptoms of fever for a day or two, the right knee became affected with swelling and pain, which gradually but rapidly increased. When I saw her, subluxation of the joint existed, the leg was bent to nearly a right angle upon the thigh, and the head of the tibia drawn backwards on the condyles of the femur. There was great swelling of the lower part of the thigh, caused by the presence of matter in this situation, which was evacuated by puncture. The integuments were not discoloured, and little pain was felt, except on attempting to move the leg. The pulse was 120, and she laboured under great constitutional disturbance with exhaustion. Another collection of matter formed, and was evacuated on the ouside of the leg a little below the joint. Symptoms of affection of the chest with purulent expectoration soon showed themselves, and the woman is now sinking under the combination.

the interpubic cartilage was softened, and pus was found in this situation; the same appearances were observed in the left sacro-iliac symphysis; the hip joint, also, contained purulent matter. In the second instance, the sacro-iliac and pubic symphyses were in a state similar to that just mentioned.

The last circumstance to which I shall at present allude, is the occurrence in the puerperal state, of a disease of the eye, similar to that which took place in the instance of Dodging from the inflammation and suppuration in the vena saphena. It will be recollected that in this case the corneæ became opaque, the vessels of the conjunctivæ injected, and that after death, destructive changes were found within the globes. Now, although a remarkable, this is not an isolated instance of a peculiar disease of the eye succeeding to inflammation of a vein from mechanical injury.

The following case occurred last year, excited much attention at the time, and gave rise to many conjectures as to the cause of the affection of the eye. A young man had a ligature placed on the left carotid artery, for an aneurismal disease of one of its temporal branches. Considerable difficulty was experienced in passing the needle round the vessel. Venous hemorrhage took place during the operation, recurred at night, and occasionally afterwards, for nine or ten days. On the fifth day

after the operation, the patient had a severe rigor, succeeded by heat of skin and general febrile symptoms. These increased, the pulse rose to 120, and the constitutional disturbance assumed a very violent character. About the tenth day, the vision of the left eye became impaired, and was quickly lost, the pupil was contracted, the iris immoveable, and the cornea had a somewhat hazy appearance: effusion took place under the conjunctiva, and the eye-lids were greatly swollen, giving the appearance of the globe being much protruded; at the same time, there was a degree of deafness, considerable stupor, with occasional slight delirium. In the course of a few days, the coats of the eye sloughed at the upper part, and its contents were evacuated. Whilst these changes were occurring in the eye, collections of matter formed without pain in different parts of the body, on both shoulders above the insertion of the deltoid muscles, over the sacrum, &c. The constitutional disturbance abated, the collapsed eye healed over, but he never recovered his health. Five months subsequently he died, labouring under lumbar abscess and worn out by hectic. On examination of the body, (at which I was present), a portion of the jugular vein to the extent of two inches was found wanting; the upper and under extremities being shrunk, ligamentous, and gradually lost in the cellular substance. On opening the head, pus was found effused in great quantity between the tunica arachnoidea and pia

mater, along the base of the brain, and the whole length of the spinal cord. The inter-muscular cellular substance of the loins was loaded with pus. The viscera of the abdomen and chest were not examined.

When we consider the circumstances of this case, the venous hemorrhage, the constitutional disturbance, the formation of abscesses, and the appearances presented on dissection, and compare them with the consequences which have been observed to follow inflammation and suppuration of a vein, and the occurrences in the case of Dodging, can it be doubted that the affection of the eye in this instance, arose from the inflammation of the jugular vein, and from the entrance of an inflammatory secretion, probably pus, into the blood?

A disease of the eye, similar to that observed in the two cases above mentioned, occurs in the puerperal state, and has been described by Dr. Marshall Hall, and Mr. Higginbottom, in a paper published in Vol. XIII. of the Society's Transactions, under the title of "Cases of Destructive Inflammation of the Eye, and of Suppurative Inflammation of the Integuments occurring in the Puerperal state, and apparently from Constitutional causes." In all of these cases, six in number, five of which came under their own observation, the affection of the eye took place in from five to eleven days after delivery. It was preceded

and accompanied by serious indisposition, in every instance terminating fatally, and under symptoms of extreme exhaustion. The affection of the eye was characterized by redness of the conjunctiva, intolerance of light, and contracted pupil; rapidly followed by opacity of the cornea, and excessive chemosis. In four instances, dissolution took place before the coats of the eye gave way; in the two others, this occurred, during life: and in one, where the process was observed, by ulceration of the coats round the cornea. In both of these cases, the collapsed globe had healed over previous to death. In each instance only one eye was affected, and that the left; with the exception of the case communicated by Mr. Ward, where it does not appear which eye was the seat of disease. With the disease of the eye, there also took place an inflammation of the integuments, first observed on the hand, but on careful examination found in the inferior, as well as the superior extremities, and under which, matter quickly formed. In one case only, there was no such inflammation.

The authors of this communication conjecture, that the morbid affection of the eye had a constitutional origin. No examination after death seems to have been made in any of these cases.

Considering the circumstances under which the affection of the eye took place, its characters, and the deposition of pus under the integuments of

the body; are we not justified, (on comparing these with the known consequences of inflammation of veins, and the frequency of this affection in those of the uterus after parturition,) in attributing such disease of the eye to inflammation of the uterine veins, and to the introduction of pus into the circulation?

Such are the facts which have induced me to conclude, that the inflammations and abscesses which arise in remote situations, after *injuries*, whether of the extremities or of the head, or after the *process of parturition*, are attributable to the existence of phlebitis in the part of the body primarily affected.

In concluding these remarks, the object of which has been to point out the relation between the primary and secondary affections in phlebitis, and to establish the introduction of pus, or other inflammatory secretion, from the surface of the vein into the circulation, as the cause of the latter; I have not felt myself called upon to advance any opinion as to the manner in which this cause operates, in giving to some of the secondary affections their peculiar characters,—I allude more particularly to the depositions of pus and lymph, unattended by those changes in the texture of the parts, which usually precede the production of these fluids. I think it right, however, to state,

that I must not be considered as regarding the matter so deposited to be actually that which has been brought into the circulation from the inflamed vein or veins. The disease of the eye, in which pus is not deposited, and the affection of the joints, exclusive of other considerations, clearly prove that the question is no longer one of a translation of matter merely, but one which involves the very difficult subject of the pathology of the blood, especially the share which diseased changes in this fluid have in the production of those phenomena which we are in the habit of comprehending under the term of inflammation.

APPENDIX.

Case of fatal Phlebitis, Deposition of Pus into the Substance of the Heart.

Since the preceding paper was read to the Society, I have received the following communication from Mr. Lawrence. The case therein detailed, presents several points of much interest, both as regards the primary and the secondary affection in phlebitis, while it supports the pathological views which I have ventured to take.

"18, Whitehall Place, 27 Nov. 1828.

"MY DEAR SIR,

"A fatal case of phlebitis has just occurred at Bethlem, the examination of which has disclosed some very interesting facts. I lose no time in sending you a statement of them, as you are occupied in investigating the pathology of this important affection, and I place the case at your disposal, should you be inclined to make use of it in your valuable paper. The inflammatory affections of the pericardium and heart seem quite analogous to the inflammations of the pleura and lungs, which have been observed in other cases. One cannot help referring these affections to the phlebitis; yet the inflammation of the vein stopped suddenly at the part I have specified. It may seem strange, that the left side of the heart should suffer rather than the right,—we should remember, however, that the latter is very rarely, the former very frequently diseased; so that, if a cause of irritation should be applied to the organ, we might expect, *à priori*, that its effect would be evidenced on the left side, as in the present instance.

I have sent the inflamed vein and the heart to Mr. Langstaff.

"Believe me, ever,

"Very truly yours,

"WM. LAWRENCE."

"A. B., 34 years of age, having been brought to London, from some distance, was received into Bethlem Hospital on the 12th of November, 1828, in a state of mental derangement, which was represented to have existed about fourteen days. When he was undressed, it was found that his right arm was inflamed, and a deep impression on the fore-arm shewed that the limb had been very tightly confined on the journey. I saw him on the following day, and found the limb red, swollen, and very painful, on the palmar aspect, from the middle of the fore-arm to the axilla. The skin had a bright pink tint, and was firm to the touch, especially at the bend of the elbow, and induration could be felt, for about two inches, in the course both of the cephalic and basilic veins, and the same kind of hardness extended to a similar distance in the fore-arm. Over the median cephalic vein there was a small puncture in the skin, giving issue to a little thin matter; a similar puncture, which had nearly closed, was situated over the basilic vein. The tongue was white, the pulse frequent, the skin rather hot, the countenance sallow, sharp, and expressive of anxiety. He was restless, and too much disturbed in mind to give any clear account of his illness or his sensations. Leeches were applied to the limb, and repeated several times; fomentation and poultices were employed; and he took active aperients with saline antimonial draughts. The redness, swelling, and pain, of the limb lessened, and had

entirely gone for some days before death. The general disturbance, however, still continued,—the pulse was very frequent, the skin remarkably hot, more particularly that of the head. There was difficulty of breathing, with some cough and mucous expectoration, and pain of the epigastric region. A blister was applied on account of the latter symptom. He complained of feeling hot air in the throat. The pulse, which continued frequent, became very feeble, and he sunk on the night of the 25th. The body was examined fifteen hours after death.

"The subcutaneous tissue at the bend of the elbow, and in the neighbouring portion both of the arm and fore-arm was partly thickened and hardened by the inflammation it had undergone, partly infiltrated with serous fluid, which flowed out abundantly during the dissection. The median cephalic, and cephalic veins, were converted into impervious cords; this change extended, in the latter, more than half way up the arm, where it terminated abruptly, the continuation of the vessel being healthy. A portion of thick pus, about equal to a large pea, escaped when the integument was dissected back in the situation of the puncture. The median basilic, and two or three veins on the ulnar side of the fore-arm, terminating in it, or in the basilic, were closed from inflammation. The basilic vein was thickened and indurated, cutting almost like cartilage:

the inner membrane was more particularly affected, and exhibited longitudinal wrinkles. It contained neither pus, lymph, nor coagulum. The axillary and subclavian veins were less thickened and indurated; but the cavity was furred over by a light brownish coating of lymph. This change extended to the very termination of the subclavian, where the cavity of the vessel was completely blocked by a somewhat soft yellow mass of lymph, to which a loose coagulum of blood was connected, filling the internal jugular and superior cava. Both these veins were healthy. The cellular tissue round the axillary and subclavian veins was infiltrated, and the axillary glands were enlarged from inflammation. There was no coagulum of blood in the basilic, axillary, or subclavian veins; nor could there have been any circulation through them for some time before death.

"The pericardium contained six or seven ounces of opaque and rather turbid fluid of a light yellowish brown. Its serous surface was highly inflamed in its whole extent: it was loaded with minute red vessels, roughened by numerous minute inequalities, and covered at a few points by thin portions of yellow lymph. In other places it exhibited portions of ecchymosis more or less extensive. The increased redness and the ecchymosis were most observable on the left cavities of the heart; the left auricle, at its posterior part, was almost one

continued mass of ecchymosis. A bright yellow patch, of irregular outline, about as large as a sixpence, and two or three much smaller spots were observed on the surface of the left ventricle, about the middle of its left and posterior part. The serous membrane was entire, smooth, and not prominent. On making a section, the muscular substance was found softened and partially broken down, while yellow pus was effused into the broken textures, but not collected into an abscess.

"The linings of the cardiac cavities were healthy.

"A small portion of the right lung was rendered impervious to air by recent inflammation; and lymph had been effused on the corresponding surface of the pleura, so as to agglutinate partially the two contiguous lobes.

"The mucous lining of the trachea and bronchial tubes was inflamed; and they were filled with frothy mucus. The liver was partially tuberculated on the surface; and the peritoneal covering of its concavity was thickened and opaque. The gall bladder was connected by strong adhesions to the neighbouring viscera."

Case of fatal Phlebitis in the Horse, with the Appearances on Dissection. By Dr. John Sims.

On the 29th of September, a horse belonging to Mr. W——— slipped one of his legs over the halter, and in endeavouring to disengage it produced a wound three inches long and half an inch deep, by friction of the limb on the rope.

On the 6th of October the wound was granulating, but as he continued lame, a neighbouring farrier saw him, who gave him a strong cathartic and bled him in the jugular vein with the usual instrument.

9th. A tumor about the size of an egg appeared over the wound in the vein. Matter formed, and a discharge was kept up from the orifice.

On the evening of the 10th, a rattling noise was observed in respiration, and other symptoms of inflammation of the lungs, attended with fever, occurred: they continued to increase, and resisted the remedies used for their relief.

24th. He has been gradually becoming exhausted by the disease: this evening a quantity of blood flowed from his nostrils, which, apparently, came from his stomach.

25th. He died suddenly in the morning, nineteen days from the time he was bled: he was previously in perfect health, except the lameness mentioned above. His instinctive faculties were active throughout the disorder.

26th. I was present when the carcase was examined by Mr. Jempson, Veterinary Surgeon of Chelsea, who saw the animal several days before he died.

I removed about eight inches of the jugular vein. The part surrounding the orifice is ulcerated: the coats of the portion of vein extending towards the head are nearly three times their natural thickness, and changed in colour: the internal coat has a dark, rough surface. These changes terminated two or three inches beyond the orifice. This part of the vein contained dark coloured pus. Immediately below the orifice, three inches of the canal are obliterated in a direction towards the heart. Proceeding downwards the vein is quite natural, and contains coagulated blood.

The heart was softer than usual. The internal coat of the superior cava, and that of the cavities of the heart, did not present any trace either of inflammation or its products.

The substance of the lungs was generally soft-

ened: the texture of a considerable portion of the posterior part (or that opposed to the diaphragm) of the left lung was broken down, and in the interstices a substance deposited resembling dirty tallow or adipocire, in many places in masses the size of an egg. The same change was observed in the corresponding part of the right lung, but not to so great an extent. There were no tubercles. The pleura pulmonalis adhered to that covering the diaphragm in both cavities, and for a small space on the right side. A few ounces of serum were found in the cavities.

The villous portion of the internal surface of the stomach was deeply red, and this organ contained several pints of fluid, the greater part of which was blood.

The internal coat of the bladder was vascular, in patches, and the muscular coat corrugated. The intestines healthy. The liver and other viscera were softened, in other respects natural.

A CONTRIBUTION

TO

THE PATHOLOGY

OF

PHLEGMASIA DOLENS.

BY ROBERT LEE, M.D.

PHYSICIAN-ACCOUCHEUR TO THE BRITISH LYING-IN HOSPITAL.

Read Dec. 23, 1828.

see also p. 369.

THERE is, perhaps, no subject on which a greater difference of opinion now prevails, than on the Pathology of Phlegmasia Dolens. Previous to the publication of the Memoirs of Mons. Bouillaud* Drs. Davis† and Velpeau ‡, various hypotheses had been advanced, respecting the proximate cause of this disease, but they were mere speculations unsupported by facts, and inadequate to account for the phenomena. The cases and dissections related by these authors first threw light on the real nature of the complaint, and shewed that it consisted in an inflammation of the trunks, and principal branches of the veins of the lower extremities; but the histories of most of these cases were so brief, and in many respects

* Archives de Médecine, Tome II, p. 192, Jan. 1823.

† Medico-Chirurgical Transactions, Vol. XII, May 1823.

‡ Archives de Médecine, Tome VI, p. 221.

so imperfect, that pathologists remained in doubt whether they should be considered as examples of genuine Phlegmasia Dolens, or viewed as analogous to those formidable attacks of Phlebitis which sometimes succeed to venesection and wounds.

In the XIIth Volume of the Transactions of this Society, published in 1823, the valuable Essay of Dr. Davis appeared, and since that period there has not been recorded in the medical literature of this country any unequivocal example of Phlegmasia Dolens, where the actual condition of the affected parts has been ascertained by dissection. I hope, therefore, that the case which I am about to relate will not be uninteresting to the Society, as it affords me an opportunity of giving an account of the morbid appearances which I observed in the iliac and femoral veins of a patient, who died twenty-one months subsequent to an attack of Phlegmasia Dolens.

Case I.—Mrs J——, æt. 31, was delivered of her fifth child on the 10th of March, 1827, after a labour of twenty hours' duration, during which she frequently complained of severe pain shooting into her left thigh and leg. This pain entirely subsided subsequently to the labour, and she appeared to recover in the most favourable manner until the 14th of March, the fourth day after her confinement. She then began to experience a sense of pain in the left groin and calf of the leg,

with numbness in the whole left inferior extremity; but nothing unusual could be perceived in the appearance of the limb, except a slight tumefaction in the situation of the inguinal glands, where pressure occasioned great uneasiness. She had occasional rigors. The tongue was furred, and there was much thirst. Bowels open. Pulse only eighty. The flow of milk and lochia natural.

March 16th, (the sixth day after parturition,) the pain of the left thigh and leg continued with increased severity, particularly from the groin to the knee, along the inner surface of the limb where a swelling of a glistening white appearance was observed. The pulse was still eighty, and the general functions were but little deranged.

19th. The pain had diminished, but the swelling had greatly increased, and extended to the leg and foot, which were both very tense, and did not pit on pressure. There was no discoloration of the skin. The pain of the limb was relieved by placing it in a state of moderate flexion.

21st. The pain in the groin had abated, and the swelling appeared to decrease.

24th. The pain of the limb was aggravated, particularly on moving it. The pulse more accelerated.—Skin hot and moist—she was extremely irritable and desponding.

25th, (the fifteenth day after delivery.) When I first saw her, the whole extremity was much swollen, the intumescence being greatest in the ham and calf of the leg. The integuments wore a uniform smooth shining appearance, having a cream-like colour, and everywhere, pitting on pressure, but more readily in some situations than in others. The temperature to the touch did not differ from that of the other limb, though she complained of a disagreeable sensation of heat throughout its whole extent, and much pain was experienced in the upper and inner part of the thigh on moving it. Immediately below Poupart's ligament, in the situation of the femoral vein, a thick, hard cord, about the size of the little finger was distinctly felt. This cord, which rolled under the fingers, and was exquisitely sensible, could be distinctly traced three or four inches down the thigh in the course of the femoral vessels, and great pain was experienced on pressure, as low down as the middle of the thigh in the same direction. The pulsations of the femoral artery were felt in the usual situation below Poupart's ligament; pressure over this vessel excited little or no uneasiness. Pulse ninety and sharp. Tongue much furred.—Thirst urgent. Bowels confined.—The lochial discharge had nearly disappeared.

Leeches were applied to the left groin and upper and inner part of the thigh; these were

followed by cold lotions to the affected parts, and mild cathartics and anodynes were administered internally.

30th. The acute pain on pressure, and motion of the limb had subsided, and the extremity was universally œdematous. For two months after this period the limb remained so feeble, as to disable her from walking, and continued larger than the other.

Eleven months after the attack the general health of the patient was restored, and she again became pregnant. On the 5th of November, 1828, she was delivered of a still-born child, and died soon after from uterine hemorrhagy. Permission to examine the body was most reluctantly granted three days after death, and the dissection was necessarily conducted with the greatest possible dispatch, from the danger of interruption on the part of the relatives.

Appearances on Dissection.—The whole of the left inferior extremity was considerably larger than the right, but no serous fluid escaped from the incisions made through the integuments, beneath which a thick layer of peculiarly dense, granular, adipose matter was observed. The common external iliac and femoral veins and arteries, enclosed in their sheath, were removed from the body for examination. The common iliac with

its subdivisions, and the upper part of the femoral veins so resembled a ligamentous cord, that, on opening the sheath, the vessel was not, until dissected out, distinguishable from the cellular substance surrounding it. On laying open the middle portion of the vein, a firm thin layer of ash-coloured lymph was found in some places adhering close to and uniting its sides, and in others clogging it up, but not distending it. On tracing upwards the obliterated vein, that portion which lies above Poupart's ligament was observed to become gradually smaller, so that, in the situation of the common iliac, it was lost in the surrounding cellular membrane, and no traces of its entrance into the vena cava were discernible. The vena cava itself was in its natural state. The entrance of the internal iliac was completely closed, and in the small portion of it which I had an opportunity of examining, the inner surface was coated by an adventitious membrane. The lower end of the removed vein was permeable, but its coats were much more dense than natural, and the inner coat was lined with a strong membrane, which diminished considerably its calibre, and here and there fine bands of the same substance ran from one side of the vessel to the other. The outer coat had formed strong adhesions with the artery and the common sheath. The inguinal glands adhered firmly to the veins, but were otherwise in a healthy condition.

No appearance of recent disease existed, and the density and firmness of the morbid textures evidently shewed that the whole was the result of inflammation which had occurred at a remote period.

The Sketch * copied from a very accurate drawing, taken immediately after the removal of the vessels from the body, will convey a clearer idea of their morbid state than any verbal description. The vein is laid open on the back part, and bristles are passed under the adventitious membrane lining its interior and closing up the mouths of all the anastomosing branches.

The patient whose case I have now related was under the immediate care of my friend Mr. Grant, of Thayer-street, Manchester-square, and to him I am indebted for the history of the disease during its early stages.

Case II.—Mrs. P——, æt. 27, of a delicate constitution, had been affected, during the last two months of pregnancy, with œdema of the right inferior extremity, a varicose state of the veins, and pain in the inside of the thigh and groin. In the latter situation it had been at times so severe as to prevent her retaining the limb long either in the bent or straight position.

* See Plate II. at end of book.

On the 8th of December, 1827, she was delivered, after a tedious labour, of a healthy child, and during the succeeding week felt unusual pain in the hypogastrium and in the right iliac and inguinal regions. On the 20th, the pain which had remitted returned with increased violence, and on the 21st rigors and other symptoms of pyrexia supervened, and the whole right inferior extremity became stiff and swollen.

On the 22d (the fourteenth day from her confinement) I first saw her. A considerable degree of tumefaction then occupied the extremity, it was, however, much greater in the leg than in the thigh; and in the former the integuments were tense and elastic, but pitted slightly on firm pressure along the front of the tibia. In the thigh no effect was produced by pressure. The temperature to the touch was higher than natural. There was exquisite pain aggravated by pressure in the course of the femoral vein, and in the groin this vessel felt as if enlarged, rolling, hard and incompressible under the finger. The pain extended upwards through the iliac region, along the course of the great vessels, and through the thigh, ham, and back of the leg towards the foot. The pulse was 112.—The skin hot.—The tongue white, with much thirst, and nausea.

December 25th, (seventeenth day after delivery, and fifth from the invasion of the disease,) all the

symptoms are augmented in severity, and violent pains are experienced in the hypogastrium and iliac regions. The tumefaction in the thigh has increased, and at the upper and inner part is so great as to prevent the distended vein from being felt. The right labium pudendi is much swollen. The integuments of the limb are pale and shining, and everywhere pit on strong pressure.

26th. A similar affection observed to be commencing in the left extremity. There is pain and sense of numbness in the whole pelvic region. The calf of the leg is slightly tumid and painful.

27th. Fullness and severe pain in the left iliac region.—Swelling of the leg and temperature increased. No enlargement of the femoral vein can be felt, yet there is exquisite pain in its course through the groin and upper part of the thigh.

28th. From the diminution of the swelling of the right extremity, the indurated vein can again be felt in the groin, the pain however in this situation is much abated. The left extremity is swollen, stiff, hot, and painful, and cannot be moved, its integuments are white and pallid, and pit on strong pressure. The left labium pudendi is similarly affected. The femoral vein is felt enlarged and indurated in its passage through the groin;—intense pain marks its course down the thigh to the point where it

leaves the ham; in this latter situation pressure produces much suffering, as it does down the whole posterior part of the leg. The parts of the limb out of the course of this vessel and of the great superficial veins are comparatively much less painful than on the lower and anterior part of the thigh; for several inches above the knee firm and continued pressure is borne without complaint. The countenance is pale and sunk. The pulse rapid. There is great irritability and prostration of strength.

29th. The swelling is so much augmented in the last affected limb, that the femoral vein can no longer be distinguished.

8th January. Tumefaction and pain gradually declining in both extremities, which now admit of being moved, but cannot be extended. The feet are more swollen and tender than any other part of the limbs.

17th. General health improved. No pain experienced in the course of the great vessels. Left leg and both feet slightly œdematous.

12th Feb. Has been gradually improving since the last report. There is great weakness in both extremities, but pain is nowhere felt, and the slight degree of swelling remaining is confined to

the left ankle and leg. No induration nor enlargement is perceptible in the course of the femoral vessels.

The remedial means employed were local abstractions of blood by leeches, anodyne fomentations, and cold lotions. Purgatives and opiates were given according to circumstances; and low diet enjoined during the acute stage of the dissease.

Dr. Sims, Mr. Arnott, and Mr. Prout, saw this patient at different periods during the progress of the complaint *.

The symptoms observed in the foregoing cases were precisely those which have been described by continental authors, as Puzos, Levret, Callisen, and Gardien, and by the best writers on phlegma-

* Feb. 3, 1829. Mrs. P. is now under my care; and from the condition of the inferior extremities, and symptoms under which she labours, it appears highly probable that the iliac and femoral veins on both sides are partially, if not entirely, obstructed. During the last year both limbs have been extremely feeble, and the feet and ankles have been so tumid and painful as often to prevent her from walking. She has also suffered from constant dull pain and sense of stiffness in the groins and upper and inner part of the thighs, where the enlarged femoral veins were formerly perceived, but which cannot now be felt on the most careful examination. Numerous large tortuous veins under the skin of both ankles and legs are, however, apparent.

sia dolens in this country, as pathognomonic of that disease; and by a short reference to a few passages contained in the works of Puzos and Levret, the accuracy of whose descriptions has never been questioned, it will be seen, that from them alone, independent of the facts ascertained by recent pathological enquiries, the inference might be fairly drawn, that the primary seat of the disease is most frequently in the great veins or arteries of the pelvis and thigh of the affected extremity, and that the infiltration of the cellular membrane, and other diseased appearances, are merely the consequence of the inflammation and obstruction of the blood vessels.

Puzos observes, "La douleur et l'enflure commencent toujours dans l'aine, et par le haut de la cuisse; le mal descend ensuite tout le long du cordon des vaisseaux." *

And at p. 350, "C'est dans l'aine et dans la partie superieure de la cuisse, que le depot commence a donner des signes de sa presence, par la douleur que l'accouchée y ressent, et la douleur suit ordinairement le trajet des gros vaisseaux qui descend le long de la cuisse, elle est même plus vive dans tout ce trajet. On reconnoit l'etendue du mal par une espèce de cordon douloureux que forme l'infiltration du tissu cellulaire qui accompagne ces vaisseaux."

* Puzos, Mémoire sur les Depots Laiteux, p. 346.

Levret's description strikingly coincides with that of Puzos, "Le cordon des vaisseaux crureaux, est aussi douloureux pour lors dans une grande partie de son trajet." *

Callisen and Gardien have described the disease in similar terms, and Mr. Whyte, Mr. Trye, and Dr. Hull, have all stated that the pain is most frequently first experienced in the situation of the great blood-vessels at the brim of the pelvis, and extends from thence along the course of the femoral vessels.

From the preceding facts, as well as from the cases to which I have already alluded, we may, I think, safely conclude, that inflammation of the coats of the iliac and femoral veins in puerperal women does unquestionably give rise to all the phenomena of genuine Phlegmasia Dolens. It remains, however, for future observers to determine, if this venous inflammation be the only cause of the disease, or if cases do not occur wherein the other textures are primarily affected. I may observe, that hitherto no instance of Phlegmasia Dolens has been met with where the glandular, lymphatic, or cellular tissues of the limb have been found diseased, without the veins being also in a morbid condition.

* Levret, L'Art des Accouchements, p. 932.

Whether the inflammation of the coats of the veins in this disease be simple adhesive inflammation, or inflammation of a specific kind connected with the puerperal state, and differing not only in degree of intensity, but in its essential nature from phlebitis after venesection, it is difficult to determine. The peculiar character of the symptoms seems strongly to favour the latter opinion, though it cannot be denied that the disease occasionally assumes the form of common phlebitis, fatal cases having occurred, where pus has been found secreted by the internal coats of the iliac veins, and death caused by inflammation and apostematous deposits of matter in the lungs and other remote organs of the body.

APPENDIX,

Containing Cases and Observations further illustrative of the Pathology of Phlegmasia Dolens.

Since the preceding paper was communicated to the Society, the three following cases have come under my observation, in which though an inflammatory affection of the veins undoubtedly existed, yet that degree and kind of swelling of the inferior extremity did not take place, which is considered to be characteristic of Phlegmasia

* Etymologically conveys concept of "metastasis."

Dolens. In all these cases the phlebitis commenced with pain in the situation of the iliac and femoral veins; but in the second, the inflammation, instead of pursuing the course of the femoral vein down the thigh, appeared to have been arrested at the junction of the saphena interna with this vein, and to have proceeded along the trunk and branches of the superficial vessel to the foot. All these affections of the lower extremities which I have witnessed, I am disposed to regard as varieties of the same disease, and to attribute the absence of general swelling of the limbs to the slight degree of inflammation and obstruction which existed in the iliac and femoral veins.

Case III.—Mrs. Smith, 36, Brownlow Street, was delivered of her third child on the 17th Nov. 1828, after a natural labour. She had enjoyed a good state of health during her pregnancy, and every thing proceeded favourably till the eighth day after her confinement, when she was attacked with pain in the left inguinal region, which increased in violence for three or four days, and was accompanied with slight symptoms of fever.

Nov. 28th. Hypogastrium and left iliac region painful on pressure; pain in the direction of the great vessels from the groin downwards, terminating at the point where they pierce the triceps muscle; no perceptible swelling. Pulse eighty-two and full; tongue white; thirst.

29th. Calf of the leg tumid and painful; great weakness of the whole extremity; the course of the femoral vein distinctly traced by the pain caused on examination; pulse 86; lochial discharge subsiding; milk abundant.

December 4th. The pain in the groin and leg, which for a day or two appeared to decline, has again become more severe; there is stiffness, with a sense of numbness in the limb, which she is unable to move, and a considerable degree of swelling from the knee to the ankle, as well as along the inside of the thigh. The integuments retain their natural colour, but their temperature is increased; no pitting from pressure, except on the tibia. A hard and painful cord distinguishable in the course of the great vein in the groin and upper part of the thigh. In the ham and lower half of the extremity pressure borne without complaint; little or no disturbance of the general functions.

9th. The pain has abated in the upper part of the thigh, and is now felt in the ham and calf of the leg, which is more swollen; skin colourless.

12th. The integuments of the leg and foot tender to the touch, and everywhere pit on pressure; temperature natural.

14th. Both pain and tumefaction gradually sub-

siding. A month after the last report, all traces of the complaint had disappeared, except a sense of stiffness, in the upper and inner part of the thigh, a slight degree of œdema about the ankle, and general debility of the extremity.

Several professional friends witnessed the progress of this case, and had no doubt as to the nature of the disease.

March 11th, 1829. The extremity formerly affected has in all respects the same appearance as the other, but it is still so feeble, as to prevent her walking any considerable distance.

Case IV.—Mrs. Coghlin, æt. 37, No. 1, Abbey Place, Little Coram Street, was delivered on the 14th February, 1829, and on the 21st, was attacked with pain in the left inguinal region, which extended during the two following days along the inner surface of the thigh and leg to the ankle. Mid-way between the knee and ankle, and about an inch from the inner edge of the tibia, the pain was so acute on the 23d, that she applied several leeches over the part. In this situation a diffuse swelling took place, soon after the aggravation of the pain.

Feb. 25th. She complains of great weakness in the whole left inferior extremity, and pain along the inner surface of the thigh and leg, the trunk

and principal branches of the internal saphena vein, to the ankle are enlarged, indurated, and very painful on pressure; a considerable degree of swelling exists in their whole course, but the integuments though hotter than on the outer surface of the limb, retain their natural colour and do not pit. Pressure over the situation of the femoral vein excites no pain, and the vein itself cannot be felt. Along the outer surface of the limb there is neither swelling, nor increased heat, nor sensibility.

The pulse is slightly accelerated, tongue clean, bowels open. When the pain is severe, she states that she has feverish attacks, which are however of short duration.

During gestation she enjoyed good health, but observed the veins of the left lower extremity to swell much more than those of the right.

27th. The internal saphena vein continues in the same state, and the swelling is not increased along its course. Considerable tenderness is now experienced in the situation of the femoral vein, though it is not distinctly perceptible to the touch.

March 1st. The swelling along the course of the saphena vein particularly in the leg is increased. Its branches both in the thigh and leg, are hard, knotted, and very painful. The integu-

ments along the inner surface of the thigh and leg, are hot, but retain the natural colour and do not pit, except along the front of the tibia.

7th. Swelling diminished, and the branches of the saphena vein in the leg less hard and painful.

10th. She suffers much more from pain in the leg, particularly along the exterior surface from the ankle to the knee joint, where several indurated branches of veins can be felt. The whole leg is now affected with a considerable degree of swelling, without increased heat or tension of the integuments. The branches of the internal saphena vein in the thigh are still hard and painful, and the femoral vein is now perceived to be enlarged and indurated, under Poupart's ligament, though but little sensible when pressed. The limb is extremely feeble, and great pain is produced by attempting to extend it.

18th. The leg and ankle are œdematous, and the extremity is left in a state of great debility. The femoral vein cannot now be distinctly perceived, but the coats of the saphena are still thickened and indurated, though perfectly free from pain. General health good.

The foregoing example of inflammation of the internal saphena vein, occurred in a patient of the Middlesex Hospital, and I was indebted to the

kindness of my friend, Dr. Ley, for an opportunity of observing the progress of the symptoms.

In 1827, a similar affection of the saphena vein occurred in two patients of the Westminster General Dispensary, who were under my care, and in both of whom the inflammation commenced with pain in the iliac and femoral veins. The swelling in these instances was also limited to the inner surface of the thigh and leg.

Case V.—Mrs. Hopkins æt. 39, No. 6, Little Earl Street, was delivered on the 11th of February 1829, and ten days after experienced a sense of weakness in the left lower extremity, with pain in the region of the uterus, and febrile symptoms. The pain continued in the hypogastrium for three or four days, and then became fixed in the left iliac region and groin.

February 26th. She now complains of pain in the left iliac region, and of general increased sensibility in the whole extremity, amounting to pain on pressure along the direction of the femoral vessels, where, however, there is no fullness or hardness to be perceived. There is a slight diffuse swelling in the calf of the leg, without increased heat or discolouration of the integuments. Considerable pyrexia.

March 6th. The pain is now chiefly confined

to the course of the great vessels of the limb. There is some swelling of the leg and thigh, but the integuments are not tense, and they retain their natural colour and temperature. Pulse quick; tongue white, with thirst. Much general debility.

10th. The whole extremity is now swollen, but not tense. There is great sensibility and increased temperature along the track of the great vessels; the femoral vein can be distinctly felt indurated and enlarged for a space of three inches below Poupart's ligament, and when pressed, acute pain is experienced in its whole course to the ham. Pulse 100; tongue white. Prostration of strength continues.

15th. The pain and swelling of the extremity have been aggravated during the last two days, but they are again diminishing. Induration of the femoral vein with tenderness continues.

23d. The extremity is so completely deprived of all power that it is incapable of supporting the weight of the body. Sense of soreness in the course of the deep seated and superficial veins. In the ham one of these vessels seems to be indurated. There is a cluster of enlarged glands seated over the great vessels in the groin, the whole limb is larger than the other; no unnatural turgescence of the cutaneous veins is perceived.

The preceding case occurred in the practice of the Westminster General Dispensary, and Dr. Granville who saw the patient with me, soon after the commencement of the complaint, also considered it an example of Phlegmasia Dolens in its milder form.

26, Argyll-street,
24th March 1829.

ANALYSIS

OF

A QUANTITY OF FLUID

DRAWN OFF FROM

A HYDROCELE

OF SOME YEARS' STANDING.

BY I. BOSTOCK, M.D. F.R.S.

Read Dec. 23d, 1828.

IN September last, Mr. Earle put into my hands a quantity of fluid which he had drawn off from a hydrocele of some years' standing. It was of a reddish-brown colour, of a thick and viscid consistence, with some masses of mucus floating in it, while, at the bottom of the vessel, there was a stratum of what appeared to be a white matter, in the form of pearly scales. When the fluid was agitated, these scales were diffused through it, giving the whole a shining and glossy appearance, while, by rest, they again slowly subsided. I immediately recognized the fluid as resembling some of which we have a notice in the early volumes of

our Transactions, the first by Dr. Marcet*, and the others by myself†; the former obtained from a diseased thyroid gland, the latter from tumours seated in the muscular parts. Dr. Marcet ascertained that these white particles were inflammable and partially soluble in alcohol; my observations, in a great measure, coincided with his, and led me to conclude, that it was a substance intermediate, in its chemical properties, between albumen and wax; I therefore named it albumino-cerous matter. A substance of the same appearance has been since detected by M. Breschet and by Dr. Christison in various morbid fluids, which in its chemical relations was found to resemble cholesterine‡; so that this white scaly matter appears to be occasionally formed in various parts of the body, and in connexion with various structures. But as the above substances, although agreeing in their leading properties, both physical and chemical, differed in some minor points, I thought the matter in question deserving of a more detailed examination.

* Vol. II. pp. 374, 5.

† Vol. IV. p. 83—87.

‡ Turner's Chem. p. 741, 2. I have been favoured by Dr. Turner with a more particular account of the substance examined by Dr. Christison. He informs me that it was "found to possess all the characters of the cholesterine, prepared from biliary concretions; the same lustre and appearance, solubility in hot alcohol, from which the white brilliant scales were deposited on cooling; infusible at 212°; and not converted into soap by potash."

The basis of the fluid was albuminous, being coagulated by heat, the mineral acids, the bi-chloride of mercury, and alcohol; it was also miscible with water, and slightly alkaline. The scaly matter was, in the first instance, completely enveloped in the mucous flakes, but, after a few days, a degree of putrefactive decomposition began to take place, some bubbles of gas attached themselves to the masses of mucus, and, as I presume from this cause, the white scales now rose to the surface. They were skimmed off by a card, and when dried by exposure to the atmosphere, formed a white, shining, pearly mass, of a consistence partly unctuous and partly friable. In order to obtain the white matter free from the scum and mucus, the mass was digested for some days in water, the water being frequently changed, and being then dried on bibulous paper, was made the subject of examination.

A portion of the white substance was gradually heated on bibulous paper over the spirit-lamp; distinct fusion could not be perceived, but it shrunk up and left a greasy stain. A portion was held on a leaf of platina, in the flame of the lamp; a degree of fusion was observed at the edges, it became black, seemed to shrink up, and at length burned with a bright flame.

A portion of the substance was kept for some time in boiling water, it was broken down into fine

particles, but it was not fused or otherwise changed; no part of it was dissolved. A portion was boiled in alcohol; it was broken down into fine particles, which were suspended in the fluid, but, as it appeared, no part of it was dissolved; the alcohol was filtered while hot, but no precipitate occurred on cooling, nor was any precipitate produced by the addition of water. A portion of the alcohol was evaporated, but none of the white matter was left behind; there was obtained only a very small quantity of a brown viscid substance, which was soluble in water, deliquesced on exposure to the atmosphere, had an acrid taste, and which appeared to be the peculiar extractive matter, procured from various animal substances, technically termed osmazome.

The white matter was boiled in sulphuric ether; no precipitation took place on cooling, but a precipitate was produced by the addition of water, and a small quantity of the white matter was left by evaporation. The white matter was heated with potash; it was broken down, but not dissolved or combined with the alkali; on cooling it rose to the surface, and the fluid after filtration, yielded no precipitate, when supersaturated with muriatic acid. Upon the whole, it appeared that the white substance, after being kept for some time in boiling water, boiling alcohol, and boiling potash, when filtered and dried, had not experienced any change; it was still partially unctuous and inflam-

mable, and left a greasy stain when heated on bibulous paper.

The above experiments seem to prove, that the white scaly matter which was formed in the fluid in question, was not precisely similar to any of the proximate principles generally recognized; it was essentially different from albumen, from adipose matter, from osmazome, from adipocire, and from cholesterine. It may be briefly characterized as a substance disposed to assume the form of thin plates or scales of a white colour and pearly lustre, of a somewhat unctuous consistence, fusible at a high temperature, inflammable, and burning with a bright flame. It is not soluble in water or in alcohol, nor is it capable of being saponified by potash, but is partially soluble in ether.

It would appear that a substance of the same *general* nature with the white scales described above is occasionally found connected with the solids, as well as with the fluids of the body. Besides its existence as the principal constituent in the biliary calculi, it seems to be not unfrequently found in the substance of the liver, in certain diseased states of this viscus*, as well as in tumours and morbid depositions of various kinds†. We may conjecture that this peculiar substance is

* See my experiments in Dr. Bright's Reports, p. 108, et seq.

† Turner's Chem. pp. 742, 3.

immediately derived from the albumen of the blood, and we may further conjecture that it is an extra-vascular production, that it does not exist ready formed in the blood, or any of its component parts, as long as they are under the influence of the circulation. It would appear probable, that when an albuminous secretion is deposited in a cavity, and retained there for a certain length of time, a part of its animal matter is converted into this substance. We have not indeed been able hitherto to form it out of the body by any artificial means, but its nature and the situations in which it is found favour this supposition. The process we may regard as analogous to that by which the muscular fibre is converted into adipocire *, the substances produced bearing a certain relation to each other, and the principal agents in both cases, being certain states of moisture and temperature. As it is always convenient to have a specific name

* An opportunity lately occurred to me of proving decidedly, that adipocire is the immediate production of the muscular fibre, not, as has been supposed by some eminent chemists, a mere residue of the fat, after the destruction of the muscle. I obtained a portion of a human thigh, which, in consequence of long maceration in water, had undergone the change in question, the form of the muscles was preserved, and there was no apparent loss of substance; there was even an indistinct appearance of the fibrous texture. On heating portions of this substance with alcohol and with ether, the whole was dissolved, except the cellular web, which was left exhibiting its ordinary structure, and forming one-twelfth part only of the whole. An observation of nearly a similar kind had been previously made by Dr. Thomson; Ann. Phil. XII. 41.

for every substance which possesses specific properties, I propose to retain the appellation, which I formerly suggested, of albumino-cerous matter, which may at least be employed as a temporary or provisional term, until we have one that is more appropriate.

According to this view of the subject, the substance in question must be regarded, rather as the cause than the consequence of disease; the primary morbid change not being in the fluid, but in the organ into which it is deposited; the substance, after its deposition, giving rise to farther derangement, either by unduly distending the parts, or by mechanically obstructing the vessels. We possess no agent by which the substance, when once deposited, can be removed, nor are we acquainted with any means of preventing its formation. Fortunately, however, in most cases, the situation and the mode of its deposition place it out of the reach of the more active and vital parts of the system, and render it rather an object of physiological curiosity than of medical treatment.

Upper Bedford Place,
Nov. 21, 1828.

ON THE USE

OF THE

SUBCARBONATE OF IRON

IN

TETANUS;

BY JOHN ELLIOTSON, M.D. CANTAB., F.R.S.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS, AND PHYSICIAN TO AND LECTURER ON THE PRACTICE OF MEDICINE IN ST. THOMAS'S HOSPITAL.

Read January 13, 1829.

IN a paper which the Society did me the honour of publishing, upon the Subcarbonate of Iron, in the first part of the thirteenth volume of our Transactions, my object was to show that this medicine *might* be given in doses of several drams every few hours,—probably in any quantity that does not mechanically disturb the alimentary canal *, and

* "When the medicine is proper, I believe there is generally no limit to the quantity which may be taken, except the unwillingness of the patient to swallow it, and the inability of the stomach to manage so heavy a mass. Neither head-ache, thirst, heat, foulness of tongue, griping, nor constipation, has occurred, nor been increased if already present. Nay, pain, and

frequently even where head-ache, vertigo, &c., would have appeared to forbid its use; and that it was one of the best remedies of chorea.

In a postscript to my paper upon the use of the sulphate of copper in chronic diarrhœa, published in the second part of the same volume, I stated that, although ignorant, at the time of my first communication upon the medicine, whether large doses were at all superior to those in common use, I had since met with several instances of diseases yielding rapidly to them, after resisting the latter, and with nine more cases of chorea, all of which were treated with it and all cured*.

heat of the head, and giddiness, existed already in some cases, and ceased during its employment." "I wish not to assert that such inconveniences will never occur; but the absence of them in all my trials justifies me in believing that they will not prove common occurrences with even half-ounce doses." "I believe that when it excites and disturbs, this arises from a peculiar susceptibility to its influence."—P. 236. It must be remembered, that I always give it in treacle; and that where the bowels are *already* costive, as it greatly augments the mass of the fæces, it may easily accumulate, unless the costiveness is regularly obviated.

* "I have since attended nine cases of the disease, *every one* of which yielded to the remedy. Some, like the former cases, were attended by head-ache; some had resisted other means. The time usually required varied from six to ten weeks,—one was cured in four, and one in not fewer than twelve. I could not then satisfy myself that large doses were at all superior to small ones in any disease, but I have now met with several instances of disease yielding at once to large doses, after resisting those in common use."—P. 466.

I also mentioned having "treated a genuine case of traumatic tetanus with it, in doses of half an ounce every two hours, taken with treacle diffused in beef tea, and that the mitigation of the disease, upon its exhibition, was too obvious for me not to ascribe the cure to the remedy." The following are the particulars of the case.

Charles Frazier, a middle-aged man, met with a compound dislocation of the great toe, by the fall of a heavy weight upon it, December 10, 1825, and was taken to St. Thomas's Hospital.

On the 24th, in the evening, the lower jaw began to be stiff, and the mouth could not be completely opened. I saw him the following morning, when the utmost separation of the jaws barely allowed the tongue to protrude; and I ordered the bowels to be cleared by ℥ij. of the oleum terebinthinæ, and then ʒss. of the subcarbonate of iron to be taken every two hours. As he had but one stool from the oil, the apothecary repeated the dose in the evening, and procured six evacuations, and finding the man unable to swallow the subcarbonate made, as is customary with me, into an electuary with twice its weight of treacle, he substituted musk. The man took one dose only of the iron, and four doses of musk.

25th. The next morning, the mouth was more closed, and the pulse was 136, about which I under-

stood it had been before the trismus began. By directing each dose of the electuary to be diffused in a cup of beef tea, I enabled the man to swallow it very well, and from this time it was taken regularly. I allowed him ℔siij. of strong beef tea daily.

26th. I found the trismus rather increased, the abdominal muscles growing hard, and deglutition difficult; pain had been felt at the epigastrium, and the tongue had been bitten in his sleep. The countenance was anxious. There had been two stools, with a little tenesmus, and the pulse was still 136. In addition to his beef tea, I ordered ℔ss. of wine daily.

27th. The trismus was a little diminished, and his countenance and spirits improved; but there had been no stool, nor any sleep. A common clyster was prescribed. A small quantity of pus was evacuated from the foot.

28th. To-day, also, the symptoms were a little improved. There was rather less trismus, and the abdominal muscles were much less hard. He had slept somewhat, and the pulse was 112. More matter was let out from the foot. Two common clysters had been given, but had produced only scanty and fluid evacuations. An injection of colocynth was therefore substituted.

29th. He now felt much better,—had slept

three hours,—had rather less trismus, and swallowed with much less difficulty,—the abdomen was tolerably soft,—the pulse about 120, but variable. There had been three stools. The allowance of strong beef tea was increased to ℔siv.

30th. The tetanic symptoms were still more diminished. The dorsum of the foot was very much inflamed, and the bowels had not been relieved. Castor oil was ordered.

31st. He opened his mouth so wide, and swallowed so well, that, at his own request, he was allowed mutton chops, in addition to his half pint of wine and strong beef tea. Had had several watery stools, with some scybala. The pulse was 108.

1st Jan. So much improvement was visible, and he had slept so well, that I ordered the subcarbonate to be taken only every four hours, and, on account of diarrhœa, to be no longer mixed with treacle preparatorily to its diffusion in beef tea.

2d and 3d. He continued to mend rapidly, *though the foot was so painful as to deprive him of rest.* From the subcarbonate being no longer taken in treacle, and the original costiveness not having been carefully obviated by the regular use of clysters night and morning, some accumulation had taken place in the large intestines, and the dry subcarbonate in the rectum gave him considerable

uneasiness. His pulse was only ninety-six; he ate his mutton-chops well; was to drink a pot of porter instead of his half pint of wine, and the medicine was to be given only every six hours.

7th. To-day he was quite well, with the exception of his foot, and ceased to be under my care.

The foot afterwards healed perfectly, and the man left the hospital full of gratitude, convinced that his life had been saved.

The result of this case was highly gratifying, but did not surprise me. I had not given the remedy at random, but according to what I conceived a fair analogy. Neuralgia, paralysis agitans, chorea, and tetanus appear all to be affections of the nerves, or those parts of the brain and spinal marrow which are immediately connected with them. These affections are evidently not of necessity structural, because in all, the disease often rather suddenly ceases, and because after death nothing is generally to be discovered. Neither are they of necessity inflammatory, both because also of the latter circumstance, and because antiphlogistic measures with mercury *generally* fail to remove them. The affection in each of these diseases has also this peculiarity,—that narcotics are of very uncertain utility in subduing it; so that I was convinced, as stated in my last paper, "that we are upon a wrong scent in our attempts to

cure tetanus and hydrophobia by narcotics, and that we should employ other remedies which exert peculiar actions upon the nervous system" *. The power of subcarbonate of iron over neuralgia, unconnected with inflammation or structural change, thus led me to employ it in paralysis agitans, and in the first case I succeeded †. I was then encouraged to exhibit it in chorea, and my success is already before the Society. My resolution was now taken to treat the first case of tetanus with it that should fall under my care.

But, besides having employed it by analogy, I could not doubt that the remedy had cured the disease, because this gradually increased till it was taken, and even during the first and second day of its exhibition; after which the symptoms declined in severity, and ceased altogether in about twelve days. Instances of traumatic tetanus are generally fatal, and, when they are not, they usually decline in a very gradual manner, and terminate at the end of some weeks. So inefficacious are opium, venesection, hot and cold bathing, mercury, bark, wine, and all the remedies ordinarily tried, that Dr. Parry concludes that "the cure of acute tetanus still remains to be sought, and since we have so little analogy to direct our search, it will, he fears, not readily be found" ‡: and Sir James Mac-

* Vol. XIII. p. 467.

† Vol. XIII. pp. 240 et seq.

‡ Cases of Tetanus and Rabies Contagiosa, p. 24.

grigor states, that, after some hundreds of cases, during the peninsular war, affording room for extensive trials of the same remedies, as well as of potass, purgatives, digitalis, and local means, he is "obliged to confess, that little or no dependence is to be placed in any of the remedies, and that the method of cure is yet to be discovered."*

Lastly, the medicine was given in such doses, and so perseveringly, that, if it possessed any virtues, these were brought in full force against the disease; and it was not combined with other means. Still, the case was solitary, and I could not prove that, if left to itself, it would not have run through an equally mild course. I therefore did not detail it to the Profession, but determined to wait patiently for another opportunity of putting the remedy to the test. Nearly three years elapsed before such an opportunity occurred; but upon the 6th of last month a case fell under my care at St. Thomas's, also traumatic and infinitely more severe, but which, under the same treatment, ceased after a few days to increase in violence, began in a few more to subside, and terminated favourably in little more than another week.

Thursday, Nov. 6, 1828. Bryan Macguire, aged 44, a labourer, was admitted into George's

* Medico-Chirurgical Transactions. Vol. VI. p. 459.

Ward, labouring under trismus and opisthotonos. The mouth could be only half opened, and the tongue had been severely bitten in his sleep. The muscles of the back and abdomen were rigid, the body arched considerably, and, during the spasms, the pain at the epigastrium was described as dreadful. The forehead was wrinkled, and the angles of the mouth drawn up, giving an expression of extreme agony. The pulse was seventy-six, regular, soft, and rather full.

On the preceding Friday he first felt a little stiffness on each side of the lower jaw, and this had increased ever since. On the Tuesday he first experienced a tightness with catchings at the epigastrium, and at night could not sleep on account of his tongue being frequently bitten; and he sweated profusely. On the Wednesday all these symptoms increased, and opisthotonos began. During the whole of the last week he had been very chilly.

Exactly a fortnight previously to his admission, his right thumb was jammed between two pieces of logwood. The skin at the root of the nail was slightly torn, and a little matter formed under the nail, and escaped on one side. I found the thumb slightly swollen and tender; a small dry crust was observable at the root of the nail, and the nail was evidently separating, but without any pus below it.

The bowels not having been relieved for four days, I ordered him instantly ℥ij of oleum terebinthinæ, followed by ℥ss. of oleum ricini every hour till a motion was procured; after which he was to take ʒij of the subcarbonate of iron formed into an electuary with treacle, diffused in strong beef tea, every two hours. He was allowed lbiij. of strong beef tea daily.

Friday, 7th. There had been seven stools, the first dark, the rest yellow and healthy. The pulse was sixty, but rose during the spasms to eighty-eight. The temperature in the axilla was 99°. The symptoms were rather increased. The dose of the iron was augmented to ʒiij, and a common injection of gruel, salt, and oil prescribed.

8th. There had been four liquid stools from the injection. The trunk was more arched, the abdominal muscles harder, the pain at the epigastrium more severe and frequent. The pulse was eighty-eight, and weaker.

The dose of the iron was increased to ℥ss. and a common injection ordered.

9th. The injection had produced two or three rather lumpy stools. The body was still more arched, and the muscles of the thigh felt hard. The slightest thing excited an exacerbation, so that I was compelled to request the pupils not to

visit him, except in company with myself. The mouth could only be opened a quarter of an inch less even than at his admission. The pulse was sixty-four and weak: the respirations twenty-two.

A pint of milk, and of porter, were added to his diet, and the injection ordered to be administered twice a day.

10th. Each injection had come away exactly in the state it was administered, and been followed by several large dark red balls, without any pain. This continued to be the case every day till the dose of the medicine was diminished. To ensure the facility of their discharge, the injection was from this time employed three times a day. The symptoms remained much at the same point from the 9th to the 13th. I discovered that above double the dose of the medicine was given that I intended, but as it produced no inconvenience, and the progress of the disease was evidently arrested, I made no alteration.

13th. He was somewhat better. 14th. Decidedly better—the abdomen less arched and hard; the paroxysms less severe and frequent. I noticed, by means of the stethoscope, that, during the attack of spasm, inspiration was made with a strong sonorous rattle, and, immediately when the spasm was over, with no more than the healthy murmur.

I could not repeat the observation, as he never afterwards experienced an exacerbation at my visits. From this time the medicine was not taken in the night.

16th. The paroxysms were far less severe and frequent.

17th. The abdomen was soft, and the trunk very little arched, and he had suffered but four paroxysms in the last forty-eight hours. The medicine was now given only every four hours. From this time he rapidly improved, had but one exacerbation in the twenty-four hours, and that at night and gradually slighter; and was so well on the 25th that I discontinued his medicine.

I am ignorant whether, if even the cure was effected by the remedy, a smaller quantity would not have been sufficient. I believe that in most cases of disease, doses of 3i or 3ij, two or three times a day, answer every purpose. But knowing as I did, that indefinite quantities are generally borne without inconvenience, and that large doses sometimes succeed after small ones have failed, and having a terrible disease to treat, which renders the system callous to many agents, and requires the full force of remedies to subdue it, I did not feel justified in trying whether less would accomplish the end. Among the large number of

cases of tetanus upon record, I have read one only in which iron was exhibited, and then, together with many other means, the sulphate was given in doses of five grains every two hours, to a negress twelve years of age, for four days. She recovered *.

Should iron prove a remedy in tetanus, I am aware that some cases will be too rapid for its action to be exerted, and that in others the degree of trismus will prevent its sufficient exhibition.

But I dare not assert that these two cases were cured by the medicine, and I never before published upon the powers of a remedy, till long and careful experience had satisfied me that my results would be confirmed by all those who employed the remedy in the *same manner*, and under the *same circumstances* of the *same diseases* in which I had employed it. Yet when the facts formerly mentioned, of my having originally employed iron in tetanus from analogy; of the usual fatality of the

* Memoirs of the Medical Society of London. Vol. VI. 1805. p. 77 et seq. The case was written in 1796, and the author does not lay any stress upon the iron. Oxyde of zinc, bark, opium, brandy, oleum succinatum, the hot bath, a clyster of tartarized antimony, and incision of a cicatrized burn followed by the application of caustic, were all simultaneously employed. But three exacerbations of spasm occurred after the application of the caustic.

disease, and the inefficacy of ordinary measures; of the gradual decline of the symptoms, in both my cases, soon after the commencement of the treatment; and of the magnitude of the quantities taken, are considered; together with the fact that these two successful cases are the only ones treated by me either in this way or in the Hospital at all, and the probability of a length of time elapsing before I meet with the disease again, I trust I shall be pardoned for communicating them to the Society.

P.S. Feb. 4, 1829. I lose no time in communicating the following case to the Society.

James Goodall, aged 15, was admitted into St. Thomas's Hospital, on February 17th, labouring under tetanus. The jaws were all but completely closed; the brow was corrugated, the angles of the mouth drawn up, the body greatly arched backwards, and rather bent to the right side. The pain of the loins was incessant and dreadful, and the spasms most severe and frequent. A few hours after his admission, they actually raised him from his bed, while his arms were extended and his countenance livid and expressive of the utmost agony. The surface was hot and bedewed with sweat, and the pulse 140.

A chilblain had existed over the right tendo Achillis for about a fortnight, and had broken on the 8th. It looked well. He had been working in the cold.

The trismus had begun upon the 14th, and the opisthotonos on the 16th.

I cleared his bowels with an injection of oil of turpentine, and commenced the exhibition of the subcarbonate of iron in doses of half an ounce every two hours, at two o'clock in the afternoon.

The following day he continued much the same, and at eight o'clock in the evening, another dreadful spasm took place, and lasted half an hour, when he died. I was not present at the inspection, but the brain and spinal marrow were found perfectly healthy, as in so many other cases of this disease. Several white spots were seen in the lining membrane of the descending aorta; the lungs were gorged with blood, and the urinary bladder very much contracted. Nothing else unusual was observable.

I have felt it my duty to make this case known to the Society, but do not consider that it affords any argument against the use of iron in the disease, any more than that the former cases prove the efficacy of the medicine. The subcarbonate

does not appear to me to exert any influence, even if it be efficacious, in less than two or three days; and I stated that I had no doubt some cases of tetanus would be too rapid to be influenced by it. In this instance the exhibition was not begun before the afternoon of the fourth day, and the patient died on the fifth. I trust therefore that the Profession will pursue the enquiry into the powers of iron in the disease.

AN ACCOUNT

OF A

CASE OF ANEURISM

BY

ANASTOMOSIS OF THE FOREHEAD,

TREATED BY THE APPLICATION OF LIGATURES.

BY B. C. BRODIE, F.R.S.

SURGEON TO THE KING; AND SURGEON TO ST. GEORGE'S HOSPITAL.

Read January 27th, 1829.

THE disease which Mr. John Bell has described under the name of Aneurism by Anastomosis* is,

* I have employed the term Aneurism by Anastomosis, because it has become (in this country at least) sanctioned by custom, and for the purpose of avoiding the inconvenience which attends the frequent change of surgical nomenclature. At the same time I must acknowledge that it appears to me to be liable to more than one objection. 1st,—I am not aware that it has been proved that there is in these cases any actual increase of the anastomosis which naturally exists between the smaller arteries. The phenomena of the disease are sufficiently explained on the supposition of the arteries being simply dilated, and elongated, and thereby rendered tortuous; and the very interesting dissection recorded by Mr. Mayo in the Medical Gazette, Vol. I. p. 261, renders it pro-

according to my experience, of comparatively rare occurrence. Three cases of the kind however have been already recorded in the Transactions of this Society, and to these I am now induced to add a fourth, the history of which will probably be deemed not devoid of interest, inasmuch as the disease had existed for many years, gradually increasing until it had reached an alarming extent, and after other methods of treatment had been employed to no purpose, was ultimately cured by a very simple operation, founded on the same principle with that, which Mr. White and Mr. Lawrence have recommended in cases of the vascular nævus of infants.

Miss ——, in the year 1809, being then about five years of age, received a severe blow on the forehead, in consequence of her having run against the corner of a bed-post. Soon afterwards a small pulsating tumor, not larger than a pea, was observed at the part on which the blow was inflicted. For many years the tumor remained nearly stationary, and as it produced no inconvenience, it excited but little attention. In the year 1821 it had manifestly increased in size, in consequence

bable that this is the only change that really takes place in the condition of the blood-vessels. 2nd,—The term aneurism by anastomosis might with equal propriety be applied to some other blood-vessel tumors, certain nævi for example, which nevertheless differ from the disease in question in many essential circumstances.

of which a surgeon in London was consulted, who attempted to cure the disease by pressure. For this purpose compresses were applied over the tumor, secured by a tight bandage round the head. Under this treatment the patient suffered from a constant and severe pain, and so far was it from being of any service, that, as soon as the pressure was left off, the tumor seemed to grow more rapidly, and the pulsation in it became stronger than before. From this time also there were frequent attacks of intense head-ach, which were to be relieved only by blood-letting.

After this no local treatment was resorted to, until the year 1824, when the tumor having increased to a still larger size, another attempt to restrain its growth by pressure was instituted under the direction of Sir Astley Cooper, but with no more favourable result than formerly.

In the end of June 1826, the disease having made still further progress, Sir Astley Cooper was again consulted, and by him a ligature was applied, (at four different times) round each of the four principal arteries by which the tumor was supplied. The result of these operations was, a slight diminution in the size of the tumor, and some relief from pain; but even this favourable change was of short duration. In the course of the winter of 1827, the tumor again grew larger, and the painful sensations returned with redoubled violence,

attended with a constant sense of weight over the eyes, and excessive depression of spirits. Occasionally there were paroxysms of pain still more violent than what was usually experienced, and followed by a state of extreme languor and exhaustion.

Miss —— remained precisely in this state, except that the tumor continued slowly to enlarge, until the 9th of October 1828, when she arrived in London, after an absence of many months, and I saw her in consultation with Dr. Robertson, of Northampton. The tumor was now bigger than a large double walnut, occupying a spot on the right side of the forehead, immediately below the margin of the hairy scalp. When the fingers were applied to it, they received an impression as if it was composed of a mass of tortuous vessels, and a strong pulsation was perceptible in every part of it. The skin covering the tumor was thin, and on some occasions, as in coughing, when the vessels were unusually distended, it appeared as if on the point of bursting. When the scalp was shaved, large and tortuous arteries were to be seen, even from a considerable distance, passing into the basis of the tumor, in every direction, from each temple, from the orbit of the right eye, and over the crown of the head from the occiput. Pressure being made on the two temporal arteries at the same instant, the pulsation of the tumor was perceptibly, but not greatly, diminished. There was

a constant sense of weight and pain in the forehead, and the latter was very much aggravated by pressure on the tumor, especially on a particular spot towards its upper edge.

The sufferings of the patient were such that she was willing to submit to any plan of treatment which might afford her even a chance of being relieved. On considering the subject, it appeared to Dr. Robertson and myself that there was no reason to expect advantage from any further attempt to obliterate the arteries by which the tumor was supplied with blood, nor indeed from any operation which had not for its object the complete extirpation and removal of the diseased structure. But the attempt to accomplish this object by means of the knife, would necessarily be made at the risk of a most alarming hæmorrhage, and the application of the actual cautery or of caustic would not only be uncertain as to the result, but, if carried to a sufficient extent completely to answer the intended purpose, might occasion such injury to the bone and periosteum, as would be productive of much subsequent inconvenience, if not actual danger, to the patient. Under these circumstances Dr. Robertson immediately assented to the proposal which I made, that I should endeavour to extirpate the tumor by means of ligatures, so applied as to produce the complete strangulation of it at its base. There seemed at any rate to be no more effectual, not

any safer method of proceeding, but even with respect to this, it was impossible not to experience in the first instance considerable apprehensions as to the loss of blood, which might take place on the separation of the slough. These apprehensions were however greatly diminished, if not altogether removed, in consequence of the conviction which we felt, that the unusual dilatation of the principal arteries of the scalp, was to be regarded as the effect, and not the cause, of the morbid growth of the smaller vessels, and as being likely to subside immediately on the tumor being destroyed.

A further consultation having been held with Mr. Keate, and afterwards with Sir Astley Cooper, and both these gentlemen having agreed in opinion with Dr. Robertson and myself, I proceeded to perform the operation, on which we had determined, on Wednesday the 15th of October, in the following manner.

A long steel needle, the length of which was about double the diameter of the tumor, was passed between it and the periosteum, penetrating the skin on each side. By means of this needle the tumor was raised as much as possible, and a second needle was introduced in the same manner, but beneath, and at right angles to, the first. A very strong silk ligature was then bound several times round the base of the tumor below the

needles as tight as it could be drawn. The tumor immediately assumed a purple colour, as if in a state of strangulation. The operation occasioned great pain both at the time and afterwards; but from the instant of the ligature having been applied, the peculiar sufferings occasioned by the disease were at an end.

In the evening the pulse being strong, the skin hot, and the pain caused by the ligature very severe, some blood was taken from the arm.

October 16th. The pain was somewhat abated, the tumor had assumed a dark colour, and had begun to shrink.

October 17th. The tongue was furred, the pulse hard and frequent, and the skin hot. More blood was taken from the arm.

October 18th. All the arteries entering the tumor had either ceased to pulsate or pulsated less strongly than before, with the exception of those at the upper part. Concluding from this last circumstance that the strangulation was not everywhere complete, and that a still greater degree of compression was necessary, I armed one of the needles with a strong double ligature, then drew it through, and having removed the needle, tied the ligatures one on each side.

October 20th. The other needle was armed in the same manner, and by means of it another double ligature was passed through the base of the tumor, and tied like the former one.

October 22d. The slough had begun to separate at its edges, and all severe pain had ceased. The pulsation at the arteries at the upper part was greatly diminished.

October 26th. The slough came away without the smallest hæmorrhage. Dry lint, with stripes of adhesive plaster over it, was applied to the ulcerated surface.

In the course of a few days the ulcer had assumed a healthy appearance, and had begun to granulate.

The appearance of the ulcer was very carefully watched, and two or three times the nitric acid was applied to some spots on its surface, in which there was an appearance that led Mr. Keate and myself to suspect that there might be a disposition to reproduce the original disease. The sloughs made by the nitric acid soon separated; the sore continued to heal, and the pulsation of the arteries in the neighbourhood to diminish.

December 2d. The cicatrix was completely

formed, and nothing unusual was to be observed except that between it and the eyebrow there was a slight appearance of fullness, manifestly depending on the skin at this part having been for a long time much distended, and having not yet returned to its original dimensions. There was no more pulsation in the arteries, which had formerly been so much enlarged, than in those of the other side of the forehead, and the patient was free from pain and all other inconvenience.

TWO CASES OF

FRACTURE OF THE THIGH-BONE

TAKING PLACE WITHOUT ANY VIOLENCE,

IN WHICH

A DISEASED STATE OF THE BONES APPEARS TO HAVE BEEN THE PREDISPOSING CAUSE OF FRACTURE,

AND CONCURRING WITH

CANCER IN THE BREASTS

IN BOTH PATIENTS.

BY THOMAS SALTER, ESQ. F.L.S.

SURGEON, POOLE, DORSET.

Read December 23rd, 1828.

ON the 22nd of July, 1823, Mrs. Lock, aged 82 years, who had been many years a respectable nurse, whilst standing at her drawers to take out some linen, felt the right thigh suddenly break, and she fell upon the floor; some persons who were in an adjoining room immediately came to her assistance, and I was sent for; I found her in a sitting posture in the same place, and just as she fell. On examination, the thigh-bone was found to be broken a short distance below the trochanters; the movements consequent on the examina-

tion produced no crepitus; but a good deal of spasm of the muscles was observed, occasioning considerable distortion of the limb. The case was treated in the usual way, and at the end of three months the bone had acquired some firmness. For several months previous to the accident, she had with little exception constant and very severe pain in the thigh, more especially at the part where the fracture took place. The disease giving rise to this very severe pain had rendered her so lame that she was unable to leave her room; but with the aid of a stick she could just move about the chamber; the pain left her as soon as the accident happened, and did not afterwards return. This poor woman had been long afflicted with a cancerous ulceration of the mamma; the ulcerative process increased after the fracture of the thigh, which, together with the confinement to bed that the broken bone necessarily occasioned, added to her great age, produced such a waste of the vital energies, that she gradually sunk, and died December 25th, 1823.

The friends of the patient would not allow of an inspection of the thigh-bone after death, but from an examination of the limb, it was found to be so flexible, that I am disposed to believe no ossific union had occurred. In the following case (its prototype) I had full permission for a post mortem examination, and the account subjoined of the

dissection will I think be considered as a sufficient illustration of the disease in both instances.

July 28th, 1824. I received a message to attend on Mrs. Pringle of this town, who was stated to have broken her thigh. The following is a history of the accident, and of the previous symptoms. This patient, who is 56 years of age, had, for about five months prior to the fracture, laboured under violent pain of the right thigh, extending from the hip-joint to the knee, which seemed deep seated as if in the bone. A little above the patella, in front of the limb, there has been for some time a slight tumefaction, which appears to arise from a thickening of the periosteum; it is tender on pressure, indeed the whole member is morbidly sensible to external impressions. The pain has been severe at all times, but more so at night; it had produced great lameness; the muscles of the thigh are much shrunk. For many years she had complained of slight rheumatic pains in the affected thigh, and for some time after this attack commenced, she supposed it to be of the same nature, and she attributed its subsequent increased severity to inadvertently striking her foot, about four months ago, against one of the steps of the stairs; but it would appear more probable that this accident arose from inattention and a weakened state of the muscles produced by previous disease, so that, in ascending the stairs,

the leg was not raised sufficiently high; however since this trifling occurrence, her sufferings have been uniformly more violent. A variety of means were employed for the relief of the patient, but these failing of their expected effects, she was recommended to try change of air. In the attempt to get into the cart which was to convey her into the country, the accident happened; she had been lifted up to the front of the vehicle, on that part where the driver's feet are usually placed, and in the act of raising the affected limb over the front to step in, the thigh-bone broke with a noise distinctly audible to the persons about her; she was again immediately taken into the house and placed in bed; the fracture was about three inches below the trochanter major; there being little or no spasm of the muscles, the extension and proper adjustment of the fracture was readily effected. The thigh was placed on an inclined plane made of pillows, and the usual bandages and splints applied; no crepitus was discovered on reducing the fracture. Since the accident she has felt no pain, unless pressure was made on any part of the thigh. For several years the patient had a scirrhus tumor of the left breast.

In October 1823, she was received into Guy's Hospital, and on the 10th of that month Sir A. Cooper removed the disease; the wound healed readily; but the cicatrix, about six months since, became affected with cancerous ulceration. The discharge and pain attending which considerably

impaired the general health. The patient lingered till October 19th, 1824, without any improvement in the state of the thigh, excepting the absence of pain. On the 20th I removed the thigh-bone, and brought it home for examination; but previous to its removal, the affected limb was observed to be considerably shorter than the other, flexible at its middle, and a good deal distorted from a projection just below the trochanter major. The muscles of the thigh were pale and shrunk; a bloody fluid escaped from the capsular ligament of the knee-joint, and two or three small clots of pure blood were in the articular cavity. On removing the patella, an ulcer about the size of the little finger nail was discovered in the upper and external part of the articulatory surface of the bone.

Circumstances rendered it necessary that the bone should be removed as quickly as possible, and in my haste to separate the head from the acetabulum the neck was accidently cut through by the scalpel, and the head of the bone left in the cotyloid cavity; in afterwards detaching the head, the ligamentum teres was torn through by the finger. The head of the bone had lost its wonted smooth, cartilaginous polish, being rough and somewhat soft near its centre. The thigh-bone was remarkably soft throughout its whole length, and the knife could be pushed through it at any part, but at its middle it was most conspicuously deficient in earthy matter; at about three inches from either extremity it was so flexible that it could

be bent in any direction. It was at the upper part of this portion where the fracture took place, but it would be difficult from the preparation to point out the precise spot; in all probability there was no entire separation, such as occurs in common fractures. The distortion of the limb did not, it is clear, arise from any overlapping, but from a bending of the bone from a contraction of the muscles. The muscles in immediate contact with the trochanters and the upper half of the limb were blended together into a uniform mass of a pale red colour, firm and semicartilaginous; having bony spicula thickly dispersed through them, and puriform matter slightly tinged with blood issuing from the cut surfaces. The common integuments had suffered no change. Corresponding to the swelling which had been observed on the front of the bone above the patella, the tendon of the cruralis was much thickened, and altered in texture, and a considerable quantity of pus came from under it; and when the tendon of this muscle was detached from the periosteum, the latter membrane was found greatly thickened, and readily separated from the bone. The table of the thigh-bone at this part was discovered to be almost entirely absorbed quite down to the condyles; the medullary cavity was filled with a bloody pultaceous substance; indeed so great was the disorganization that I find it difficult to give such a description of it as shall convey to the reader an accurate idea of the change of struc-

ture the bone had undergone; but I trust the accompanying drawings*, made by my intelligent pupil, Mr. Bullar, will in a measure supply what may be found deficient in description. They are representations of rather more than the lower third of the thigh-bone, passing through and including the condyles. One of the portions is drawn as it appeared immediately as the section had been made; the other, from the dried preparation after a tedious maceration by which all the soft parts were decomposed and separated. The latter preparation is only of the trifling weight of four drachms and a half troy.

The foregoing cases have so many points of analogy, that we are naturally led to suppose the predisposing cause of fracture to have been the same in both cases. Both the patients laboured under cancer of the breast; both suffered much from previous pain and lameness; and in both instances also, the accidents occurred without the agency of the usual external causes; indeed the only circumstance in which they do not entirely accord is the age of the patients. However, it must be remembered that a numerical disparity in years is not always a correct measure of the constitutional differences of individuals. The bones of elderly people sometimes undergo a change of structure by which they become soft-

* See Plate III.

ened in their texture, and rendered liable to fracture by the operation of trifling causes. In his splendid work on "Dislocations and Fractures of the Joints," Sir Astley Cooper makes the following observation on the state of the bones of old people: "that the regular decay of nature which is called old age, is attended with changes which are easily detected in the dead body; and one of the principal of these is found in the bones; for they become thin in their shell and spongy in their texture." So easily are bones broken that have undergone this change, that the shaft of a thigh-bone, the neck of which was shortened, was broken by Mr. South in his attempt to remove it from a body in the dissecting-room at St. Thomas's Hospital *. But it has not been observed, that the changes here alluded to are accompanied with either pain or lameness, which form two principal features in the cases here submitted to the profession, besides which, one of the patients had not arrived at an advanced age. I therefore infer, the disease with which these two persons were affected, to be essentially different from the change in the shaft and upper part of the thigh-bone, incident to advanced age. Mr. Samuel Cooper is the only surgical author to which I have access, who has taken any notice of this disease. In his "First Lines of Surgery," he observes, "that Louis and Saviard mention cases

* Sir A. Cooper on Dislocations and Fractures of the Joints.

in which women affected with old ulcerated cancers have fractured their bones in merely executing the natural and ordinary motions of the body, as merely changing their positions in bed. No mention is however made by Mr. Cooper of pain or lameness preceding these fractures; and as I have no opportunity to consult the authors by whom the observations were made, I cannot determine whether they were really affected by any premonitory symptoms. However, it is not impossible that these symptoms may have existed, though they may not have been considered by the authors of sufficient importance to require to be recorded. If the experience of other surgeons accord with Louis and Saviard, it would seem to establish a connection, nearly allied to cause and effect, between carcinoma and this peculiar kind of fracture. Whether the disease in the bone be in itself actually of a carcinomatous nature, or of some other kind, excited by the cancerous virus in the habit, it is perhaps difficult to determine. If, however, a more enlarged experience should prove, that the two diseases have no connection, the cases mentioned by Louis and Saviard, as well as those above recited, must be allowed to constitute singular and remarkable coincidences.

OBSERVATIONS

ON

THE LOCAL DISEASES

TERMED MALIGNANT.

BY BENJAMIN TRAVERS, F.R.S.

SURGEON TO ST. THOMAS'S HOSPITAL, AND PRESIDENT OF THE SOCIETY.

PART I.

Read Feb. 10th, and April 28th, 1829.

CHRONIC local diseases may be divided into tractable and intractable; this is the simplest division, but somewhat too general without further explanation.

A disease, curable in its nature, may be so intractable from its situation, or extent, or some local peculiarity, as to be extremely difficult, or even not to admit, of cure. Of such kind are many ulcers which have existed in variable states of progress for twenty years or upwards, which either have been healed, or have seemed to be approaching a cure, and have unexpectedly returned or relapsed. Tumours also so situated, or of such size as to render operation hazardous or impracticable, sometimes continue to inconvenience and disfigure the subject of them through life.

They do not disturb the health, but their removal is always attended with danger. Many cutaneous affections, as herpetic and impetiginous ulcerations, are of the same unmanageable character. That they are not in their nature destructive is proved by the length of time during which they coexist with a tolerable, if not good, state of health.

A disease may be intractable in its nature—first

On account of its depending upon a poison absorbed, as the venereal, or an ill condition or habitual morbid state of the system, as the scrofulous; or an inveterate cachexia compounded of both. Second,

From its being a disease of a part which, when it has reached a certain stage, generates a poison, and thus diffuses its species and destroys contiguous textures, so that after this stage is reached, however complete its apparent extirpation or destruction, it is liable to reappear. Third,

From its being a disease of the constitution shewing itself primarily and exclusively in tumours, bearing a similar character, in various parts of the body, and proving within a short period destructive to life, in despite of the earliest interference of art.

To the two latter classes belongs the genus *Cancer*, in all its varieties.

Many diseases intractable in the first sense; viz. from the presence of a foreign poison or a depraved state of the habit, assume a character nearly resembling those of the second class, and being frequently destructive to life, are considered to partake of malignity. But they admit of distinction, both in their external character and progress, and for the most part in their manner of affecting the constitution, and of ultimately destroying life. The accurate knowledge of this distinction so as to adapt the treatment with confidence in all cases, as far as treatment avails, would be an important attainment in surgical practice.

A question of primary importance, in reference to the diseases termed malignant, is the following. Is the disease on its first appearance malignant? By which term I mean, not intractable, but incurable, and at the same time directly tending, sooner or later, to the destruction of the individual. Or does the disease arising in circumstances favourable to the attainment of malignity, as texture, sex, temperament, age or climate may explain, become in the course of time malignant? The point of this inquiry is obvious. If upon its first appearance a local affection is stamped with the essential character of malignity, as above defined, it is in fact a disease of the constitution,

whence alone such a character can be derived. It is conceivable that a simple local disease may become malignant by the influence of the constitution upon it, as a simple fever may become typhoid or putrid, but a strictly local affection cannot be malignant. When we speak of the decided malignity of a tumour, or ulcer, we mean to say, that it is such a disease of the system shewing itself in a part. When we say that it has a malignant aspect, or resembles a malignant tumour or ulcer, we mean that it is analogous to those in which the constitution, sooner or later, takes such an action. We cannot well conceive of malignity, as the exclusive or innate property of a part. A change of structure, whether of increase or loss of substance, which not only resists every remedy, but which, being extirpated or destroyed, is reproduced either in the vicinity or at a distance from the original site, is certainly not, in strictness, a local disease. But if from any local cause a sore refuses to heal, or falls into gangrene; if by the extension of the ulcerative process blood-vessels are opened and fatal hæmorrhage ensues; if by the profuseness of a secretion the patient dies exhausted; if by the incessant irritation of the nervous system, or the morbid actions set up in vital organs under a protracted symptomatic fever, life is extinguished; the disease does in no respect imply a malignant nature, though often so considered, malignant diseases being subject to a similar termination. It is to incurableness from

causes not local, and consequently the disposition to appear in more than one part at the same time, or to reappear when the first affected part has been freely removed, that the term malignity is applicable.

If a local disease were from its earliest germ impressed with a malignant character derived from a morbific matter in the constitution, it would be so much a constitutional disease, that the removal of it could never be urged on the ground of permanent benefit. To one species of malignant disease this character is applicable, as I shall explain hereafter.

But although a local disease, strictly speaking, cannot be malignant, it is clear that a disease, altogether local in its commencement, may in its progress stir up an action of the constitution which imparts to it that character, or a malignant constitutional disease may only shew itself in a part.

Again, constitutional malignancy may not shew itself in any part by a specific organic change, as is the case with some poisons and contagious fevers; whereas the disease of a part must derive its malignant property from the constitution.

A scirrhous tumour may therefore be, and undoubtedly is, in the first instance, a local and

single disease. The proof of this may be found, allowing for all the prejudices against the operation, and all the mistakes of pathology, in the record of a thousand instances of the early and complete removal of the disease, without threat of return during many years of the patient's after life; nay, the ulcerated stage is not always too late for recovery, and under otherwise favourable circumstances the removal of the fungating ulcer of the cancerous breast, and other parts, has been successful. This, however, has proved a fortunate exception to the ordinary course of experience.

This single fact is an answer to the question, whether the scirrhus is local or constitutional in its origin. The actual relations of the constitution and the part in the production of the disease in which scirrhus commonly terminates, I shall discuss after describing the characters of scirrhous cancer.

We may consider carcinoma as a genus of the order "malignant diseases". It species are 1st. the scirrhous, 2d, the medullary. Their respective modifications and varieties are to be referred to those of structure. The first has been also called the 'hard' or the 'stone' cancer—the second, the 'soft' cancer, 'fungus hæmatodes'—'encephalodes'—'melanodes'—'fungoid inflammation'—'medullary sarcoma', &c. &c. according to its varying phenomena of colour and consist-

ence. The inconvenience of a change, or a multiplicity of name, is far greater than the retention of one that might admit of improvement. Medullary is the most descriptive and comprehensive definition; I shall therefore retain it.

Of Scirrhous Cancer.—Scirrhous cancer originates in some or other description of secretory structure. Its seats are, 1. The follicles of the mucous membrane; mouth, fauces, stomach, and intestinal canal: 2. of the reflected integument at the orifices of canals; uterus and vagina, anus, urethra: 3. of the skin, especially where they most abound; face, scrotum, prepuce. 4. The secreting glands termed 'conglomerate', as the lachrymal, salivary, mammary,—the liver, pancreas, testicle. 5. The lymphatic absorbent or 'conglobate' glands. I am not aware that it originates in other textures.

Since it is confined to secretory structure, and appears there without any exception, it is natural to look to this structure for some peculiarity or property which may explain its liability to the disease. Some have supposed that the natural secretion having become stagnant in the vasa efferentia, excretory ducts, or follicles, has acquired a particular acrimony, and engendered the disease in the containing and surrounding parts. This is a plausible conjecture, but not proofworthy. 1st. We have daily examples of this occurrence in se-

baceous follicles and mucous ducts, and the utmost effects are, if diffused, a papular or tubercular eruption—if circumscribed, a furuncular inflammation, a phlegmon, or an encysted serous or albuminous tumour—events depending upon the texture of the affected part, and the duration and extent of the irritation; but the diseased state, whichever it be, is simple, casual, and, unlike cancer, common at all periods of life. 2d. We have no reason for supposing that the proper secretions of a part, as the saliva, the tears, the milk, the urine, the semen, are capable of undergoing such a change as to render them deleterious to their native structures; while the animal and vital powers remain in operation; and to suppose so, would be a gratuitous impeachment of the design of their formation. But a more fatal objection is, that the disease often springs up, not only when the affected organ is in full and healthy action, as during suckling, but when the secreting function has never been employed, as for example in the virgin breast; or when from age, the structure is obliterated. Others have thought that under a change of the action of glands at a particular period of life, and perhaps influenced by a morbid state of the constitution, they have secreted a poisonous virus, which, being absorbed into the circulation, proves ultimately fatal to life. To this it may be answered, that proof is wanting, that proper glandular structure is more than the *nidus* of the disease. Scirrhus is an adventitious, not a con-

verted or changed, structure. It is in the connecting and parenchymatous tissue that it is deposited, and the glandular structure only yields to the disease in its progress, and that slowly. The closer and more compact the texture of the gland, the less frequently is it affected. Where it is encased in a dense sheath, as the body of the testicle, the scirrhus is rare; hence also its infrequency, and with many even doubtful existence in lymphatic glands as a primary affection, though of the fact I have positive evidence. Where, on the other hand, the structure is more loosely disposed, as the lobules of the female breast, the greater the liability to the disease. The uterus is no exception to this remark, for the disease begins, not in the body or cervix, but in the reflection of the vagina at its mouth, where the looser membrane becomes strict; this also happens in the lip and membrane of the mouth, the prepuce at the corona glandis, the junction of the skins at the verge of the anus, &c. There is however much reason to believe that, at a certain period, the secretion of the diseased part is absorbed into the circulation, because we see first neighbouring, and, ultimately, remote parts, exhibiting the same changes, and, when this is the case, invariably leading to a fatal termination.

Glandular organs are the seat of scirrhus, because they are more abundantly than other parts supplied with vessels whose office is the separation

and combination of new materials from the circulating fluid; and it is sufficiently probable, that when, having been habitually and actively employed, they cease to be so, these vessels make preternatural deposits, and expend their energies, wantonly as it were, upon new and useless structures. This seems to me to be the origin of the scirrhous tubercle. The dilatable tissues—those most subject to changes of capacity under great diversities in the quantity and impulse of the circulation, and necessarily furnished with a very abundant cellular tissue, common or proper—are peculiarly subject to originate scirrhus.

But it must at the same time be admitted, that the disease often arises in those individuals, in whom the organs most frequently visited by the complaint have not been subjected to extreme variations of capacity, as in the virgin female.

Having considered the peculiarities and properties of place, let us consider those of time. The exceptions to the formation of scirrhus before the forty-fifth year are rare. It seems, therefore, that as the place is connected with particular structure, the time of its appearance is connected with the general state of the circulation. It is seldom until the catamenia are ceasing or are terminated, that the disease attacks the female—a time at which the organs most subject to feel the tides of the circulation may be supposed to be

particularly affected—it is in the decline of the circulating power that semi-organizable cartilaginous deposits, the results of passive congestion rather than inflammation, are most frequent; as those which take place about the valves of the heart, or the linings of the great vessels, and about the apparatus of the joints, and in the sheaths of tendons. To the male sex equally, in the various seats of the disease, the same observation is applicable; viz. that for the most part it is in the decline of life, when insidious and unperceived deteriorations are taking place, and most especially in glandular structures, that scirrhus begins. A condensation of spongy texture, an opacity of that which is naturally pellucid, a preponderance of the earthy part of bones, and a tendency to cartilaginous and ossific deposition in the coats of arteries, and elsewhere, are natural to this period, and may be considered as climacteric changes. I do not mean to compare the deposit of the matter of scirrhus to such natural degenerations, but to shew that a particular period of life favours the disposition to inorganizable and unabsorbable deposits; and I have observed the coincidence in the dissection of cancerous subjects. Such changes are, I imagine, connected with a sluggish and feeble, perhaps obstructed state of the capillary, vascular and absorbent circulation.

Structure of Scirrhus.—External characters—hardness with increase of weight, inelasticity or

toughness in some cases, knotty or craggy induration in others. Circumscription, and mobility beneath the skin in its earliest stage, but not to such a degree in the subjacent bed as to allow of the fingers passing beneath the tumour, and turning it edge upwards. Next, i. e. in the second stage, close adhesion to the tegument, and such incorporation with the glandular organ in which it is seated, as to have no mobility but that of the gland itself upon the parts beneath. The adhesion of the skin, either stretches, or partially retracts and puckers it, according to the smooth or unequal surface of the tumour, and to the close or loose attachment, and particular conformation of the integument at the spot, as for example, next the nipple and at a distance from it; or beneath the mucous membrane of the pylorus or rectum, and the common integument of the body. Third stage: Contraction and diminution, by pressure, of volume in the gland as the tumour increases. Abrupt projection of one large coloured tubercle, sometimes of several smaller tubercles or nodules. Irreducibleness of volume and hardness by topics or medicine. Transient pains, which have been hitherto obscure and occasional, now more distinct and frequent, like the pricking of a sharp instrument, with a sense of heat or burning. Dusky or livid red colour of the skin, with resplendent tension. Excoriation or cracking of the skin at the summit or base of the tubercles, and fungous elevations, with ichorous and sanious

oozing. Neither of these signs is individually diagnostic. There is a tumour met with in the breasts of young women, more like a shelled walnut, in point of size and nodosity, than any thing to which I can compare it. It is of a stony hardness, and is not reduced by regulated and equal compression, mercury, iodine, or blisters. It is an enlargement and partial cohesion of the lactiferous tubes in a cluster, in one or more places, and which disposition in a less degree pervades the ducts throughout the organ. No well-informed person mistakes this affection for scirrhus.

There is a deep-seated, partially elastic swelling, with an uniform smooth surface, in consistence resembling cartilage, which I have seen in childhood, middle and advanced age, is not painful, but gradually increases until it involves, by adhesion, the skin and all neighbouring parts, and becomes a solid, unyielding, immoveable mass, which shews no diposition to suppurate, and is absolutely irreducible. It often destroys by compression of the first passages, as the larynx and œsophagus, or alimentary tube, in some other part. This is not, nor is it conceived to be, a cancer. Upon section it is found to resemble the ovarian tumour, or what has been called the potatoe tumour of the uterus; the osteo-sarcomatous tumour of the ribs, ossa innominata, and other bones. It has a dense and

uniform interior, so compact as to present nothing like cyst or cell.

Thus neither irregular rocky hardness, nor smooth gristly firmness, nor irreducibleness, separately considered, are diagnostic of scirrhus. As to mobility, colour, pain, puckering, rate of progress, these are too uncertain, casual, and frequent of occurrence in cases not liable to be mistaken, to need example.

But if the assemblage of the characters before mentioned is contemplated, it will be admitted to describe a scirrhus and nothing else. So that the external characters are in the main sufficient, though they furnish no unique diagnostic sign.

Internal Characters.—These, though presenting some variety, are more to be depended upon. In the first stage, on section, a tough, inorganizable, and pretty compact mass, of a white and yellow-brown colour, smooth and moistened by a slightly unctuous fluid; its consistence is not uniform, being hard in the centre, so as to form a nucleus. The circumference is defined by the termination of red vessels forming a vascular boundary. Upon floating in water, and still more by a certain maceration, the texture opens so as to bring into view concentric areolæ, having their interstices filled by a white granular matter, which may be

picked out from the meshes. These areolæ are crossed by faint white lines, at irregular intervals, in the direction of radii from a centre, visible to the naked eye, and very conspicuous under a magnifier, giving the section some analogy to that of a lemon.

In the second stage, when inflammatory action commences, and is announced by shoots of pain, the relative firmness of the centre and circumference of the tubercle becomes reversed, the centre being pulpy or broken, while the circumference retains its firmness. The surrounding parts are now found to have lost their natural elasticity by condensation of texture, and partake of the firmness and weight of the scirrhus, giving considerable apparent increase of volume to the tumour, which is now less defined at its margin, and, in fact, of a compound character. The dense opaque white lines which, traversing the tumour in the direction of radii, diminish in density as they proceed outward, and are lost in the extreme circumference of the gland, are not the production of disease, but the septa, which divide and support the lobules of which the gland is composed, in an opaque and thickened state. Within the wall of the tubercle, one or more cysts, containing a dark yellow or coffee-brown fluid, are sometimes met with, but are often not present.

The above appearances are characteristic of the genuine scirrhus. The softened and broken

down nucleus bears little analogy to the appearance of imperfect and caseous suppuration in the centre of diseased mesenteric glands, or other scrofulous swellings. The peculiar firmness of the exterior; the entire absence of inflammatory effusions, membraneous lymph, and purulent matter; and the involvement of surrounding parts in the same compact and indurated state,—cellular membrane, skin, and even muscle,—are sufficient to distinguish it. The lymphatic glands in the vicinity are enlarged, but present a very inferior degree of hardness, and on section are found to have retained their natural colour and structure for a considerable time. The septa are conspicuous, as before described, and eventually, the centre and surrounding parts undergo the same change as was observed in the texture originally affected. By extension, no parts are excepted from contamination in the progress of a scirrhus; but neither the mammary, the lymphatic, nor other glands have any original substantive share in the disease,—it is a new and interstitial deposit.

That the scirrhous tubercle is an insulated formation, may be seen at once, by examination of it in the liver, where the contrasted colour and texture display the definite outline of the diseased growth, and the displacement of the glandular structure. The stages are also well seen in this tubercle. 1st, The firm and homogeneous section, but retiform on maceration, of the smaller sized

tubercles, round or oval shaped. 2d, The middle-sized, broken up in the interior, and indented, where contiguous to the surface, on the external centre. 3d, The largest in size, of an irregular rhomboid figure, boldly projecting, when near the surface, around a small central depression, and occupied with a soft whitish medulla in its entire circumference. This is the scirrhous tubercle of the liver. The change which takes place in its interior is pure ulceration, there is nothing resembling a suppurative process. The inflammatory action which ensues in the surrounding parts, and opens the disease to the surface, conferring upon it the name of 'cancer' among surgeons, though strongly characterized, and of grave importance as an epoch in the history of the disease, and of its effects upon the system, is altogether incidental; the original scirrhus soon disappearing under the rapidly destructive combination of ulcerative absorption and gangrene.

The ulcerative process at length opens the tumour where the cracked and livid integument, previously exuding a sanious ichor, is most prominent, and the external opening is sometimes enlarged by a partial sloughing of the integument. Suppuration now takes place in the surrounding cellular membrane, and as granulations spring up luxuriantly from the sides, the centre of the tumour gapes and becomes a cavity more or less considerable. The granulations have a spongy or fungoid

character, and are so elevated and broadly everted as to give the appearance of additional depth and breadth to the sore. As the sloughing process enlarges and deepens the centre, the disease becomes exceedingly offensive, and although granulations continue sprouting circumferentially at the same time, they have not the power of maintaining their vitality. It is in vain that we attempt to preserve the ulcer from foulness and fetor by detergent applications; we can render it clean, but in a day or two the newly cleansed surface ulcerates afresh, instead of advancing towards cicatrization.

The incised wound of the operation heals kindly, but soon after, or sometimes even before its perfect closure, an indurated tumour appears or may be felt at the angle of the cicatrix or near it, in the course of the absorbents, which in time goes on to ulceration. The disease is however so common, and terms of description so inadequate to convey appearances familiar to every Hospital student, that I shall not dwell longer on these details, observing only, that in no stage of the process, after ulceration is established, is there any analogy to scrofulous action. But a scirrhus is sometimes mistaken. I have gone into the country, prepared to extirpate what was considered by an intelligent surgeon to be a scirrhous mamma, and on thrusting a double-edged scalpel deeply into the centre of a hard massive tumour, have

given discharge to a cupfull of well-formed pus. This is a case of deep-seated chronic abscess. Sometimes it forms between the breast and pectoral muscle, when it lifts the gland, and may be felt obscurely at its edge.

In scirrhus it is not suppuration which, as in scrofulous and other tumours, brings the disease to the surface, nor does the external skin ulcerate, until after the scirrhus. Its first and proper action is within itself. Encompassed by a dense wall, the centre breaks up by ulceration, constituting the state of occult cancer. Indeed the scirrhus is seldom removed so early as to be found with its nucleus unbroken. A sudden and extensive gangrene has been known to eliminate the disease completely, and upon this principle the cautery, arsenic, and other corrosives, are sometimes successfully employed by cancer curers. Mr. Cline had a patient in St. Thomas's Hospital many years ago, in whom the sloughing process went on spontaneously under a linseed meal poultice, to such extent, that the wound afterwards healed soundly. I have seen more than one case in which extensive cicatrices of ulcers existed with much puckering and stretching of the skin of the chest, and no vestige of the breast remained. In one of these the patient, a lady residing in Berkshire, resisted the pressing advice of a consultation of London surgeons to allow of the extirpation of the tumour many years since. She has been in the constant habit

of taking the medicine then prescribed, the extract of hemlock, almost *ad libitum*, with which she supplies herself regularly from Apothecaries' Hall. She is still a stout, healthy-looking person, as formerly, and attributes her cure to the medicine.

Not unfrequently the scirrhous tumour is perfectly inert from the period of its formation to the close of life, undergoing very slight, if any, increase, and giving, when mental apprehension is appeased, no trouble to the subject of it. A lady now under my observation has been many years so situated, enjoying uninterrupted health, though considerably above seventy years of age. The tumour is of the size of a hen's egg, and has the genuine scirrhous character. She takes sarsaparilla as a beverage, and the probability is, that what in no degree affects her health, will not eventually shorten her life. Other cases I have met with and heard related of inert scirrhus, the patient dying of another and distinct disease.

The complete removal of the scirrhus by a sloughing process, and its remaining through a period of many years inoffensive to the system, though somewhat rare occurrences, are additionally conclusive as to the original strictly local character of the disease. Sometimes the ulcerative action is superficial and herpetic, and, instead of excavating the breast, creeps upon the surface,

and converts the entire front or side of the chest into a warty or tubercular ulcer, discharging profusely a thin and very acrid matter, if we may judge from its tendency to inflame and excoriate the sound edges. The subjacent tumour is at the same time very large, hard, and immovably fixed. The sufferings of patients with this form of the disease are remarkably acute. The skin is highly irritable, and as if charged to saturation with the poison, for a pimple, a mole, or a leech bite is often converted into a tubercle. In such cases it is very usual for the opposite breast to become similarly affected, and an inflamed absorbent or a chain of small skin tubercles extends across the sternum from one to the other. Such a case may now be seen under my care in Elizabeth ward of St. Thomas's Hospital, in the person of a poor Irishwoman.

In other cases oblong folds and furrows, which look like cicatrices, would lead a surgeon to suppose that the scirrhus had been extirpated, and that the disease had returned. The cause of this appearance, I apprehend, is an interstitial, instead of ulcerative, absorption, and partial but firm lines of adhesion between the skin and pectoral muscle.

The permanent obstruction or obliteration of the absorbents, together with the disease of the lymphatic glands, gives occasion to that enormous

œdematous swelling (as of the upper extremity in cancer of the breast) which are among the last symptoms of this dreadful disease.

Of the Medullary Cancer.—This species, also a morbid growth, differs from the scirrhous cancer, 1st. In its property of affecting any or all textures without exception, skin, bone, muscle, fascia, tendon, ligament, nerve, membrane and gland of each description, blood-vessel, and all the viscera and organs of sense.

2d. In travelling as much by the blood-vessels as the absorbents of the part, and therefore not affecting contiguous parts only, but remote districts of the body; structures altogether dissimilar, and often, many at the same time.

3d. In external characters—which, however modified by structure, situation, and connection of parts, are the reverse of those of scirrhus, the tumour having a degree of elastic softness which conveys a sensation of fluidity, a uniform roundness, and a volume far exceeding that of scirrhus, and in short, more resembling a deep collection of matter.

4th. In internal characters—being uniformly lardaceous on section, or pulpy, or semi-fluid, and intimately blended with original textures, i. e. deposited in their interstices and proper cellular

tissue. By its seat it is modified in consistence, being in bone of so much firmness as to be osteo-sarcomatous in appearance; also in colour, as in the eye and some other parts, hence the term 'melanodes'; and in the limbs where it reaches a formidable magnitude, being mixed up with the coagula of blood which has escaped from the veins destroyed by it, 'hematodes.' The extreme states of a fresh and a decomposed brain present its different degrees of consistence; and its colour upon section is either opaque white or black, or a mixture of the two, a mottled grey and brown, or cineritious.

5th. It differs last, but not least, from the scirrhous species, in being the disease of early rather than advanced life, and from the first a truly malignant and therefore a constitutional disease.

Like scirrhus, it is unconnected with a suppurative process, its characteristic action is first adhesive, then ulcerative; it is seldom associated with gangrene at any period.

The medullary cancer is so universal that a patient from whose limb a tumour of this species is removed, and to all appearance with complete success, falls a victim to the poison (if not cut off by some other disease) developed gradually or obscurely in some visceral organ or organs within a comparatively short time. I have never

known a person survive this disease after its removal by the knife, more than four years, and in very few instances so long; when, as often happens, it returns upon the part or neighbourhood, its progress to destruction is vastly more rapid. After removing a medullary cancerous tumour from the calf of the leg in a young man, I was compelled within three months to amputate high in the thigh. After removing such a tumour from the foot, including some of the toes and metatarsal bones, of a young woman, she was attacked by the disease in the groin, and died within six months. So, after extirpating the testis, the disease has presented itself very speedily in the groin.

Two young gentlemen, for one of whom a small tumour was removed from the thigh, and for the other, amputation at the thigh performed for a tumour involving the knee joint, lived each from three to four years, without any re-appearance of the disease externally, and with very little interruption to health in the interval; both died of the disease in the chest.

The scirrhous cancer also developes itself occasionally in remote organs, after the removal, and without return, of the external tumour. In the liver, and in the uterus, I have met with the tubercle after extirpation of the breast a year or two before. But these instances are, by comparison

with those just mentioned, rare. A particular stage of the scirrhus marks its malignity, prior to which, its complete removal confers security, and after which it is unavailing, and probably shortens life. When ulceration begins, absorption also begins, for ulceration is the action of absorbents. Ulceration is distinguished by a peculiar pain, and it has been observed, that after this pain has been much complained of, the operation is seldom successful.

There is, however, a great and obvious difference in the sympathy of the constitution with scirrhus in different individuals. I should say there were two classes of cases, one in which the constitution might either be supposed to labour with the *materies morbi* before its local manifestation, or which, by the general and simultaneous failing of the functions of health, appears to invite or to be incapable of resisting the assault. As when mental disquietude, bodily fatigue, impaired digestive power, wasting and muscular flaccidity, sallow and haggard countenance, prurient affections, or erythematous inflammations of the skin precede the accidental discovery of a small lump in the breast. In precisely such a case I was consulted, within six weeks from the discovery, by a widow lady of 57 years, who had suffered from a domestic affliction severely a year before, and upon immediate conference with Mr. Cline, the opinion given was decidedly adverse to the opera-

tion, although the local circumstances were yet as favourable as could be conceived. She died within two years, the disease running through all its stages.

In the other and more frequent case, the actual enjoyment of health appears not to be incompatible with the slow progress of the scirrhus even for years, of which the pain or rather uneasiness is so inconsiderable as scarcely to draw attention to it. Somewhat suddenly it becomes more uneasy from increase of size and weight, a short acute darting pain with a flush of heat is experienced at lessening intervals, and although the health is not very noticeably disturbed before the skin inflames and threatens, or begins to ulcerate, yet, in despite of strong animal spirits, there are obscurer indications to the medical observer—in the sallow complexion and lack-lustre eye, the languor and frequent headache, defective appetite and rest, with transient heats and wandering pains in different parts of the body, and especially in the loss of volume and firmness in the muscular flesh—that the poison is at work and circulating with every pulse.

Where the constitution is affected as in the case first described, it is at least predisposed to be sooner irritated by any local malady, and to favour, rather than otherwise, those changes by which the deleterious qualities of morbid secretions are evolved, and the more rapid career of the disease

to its termination is thus explained; where, on the other hand, the constitution is healthy and even vigorous at the time of the formation, its power of resistance both to the local irritation and to the changes which precede and promote the admission and action of the poison, is in proportion great, and the progress of the disease tardy.

I fear that there is too much reason to fix the period at which the scirrhus becomes a constitutional disease at a considerably earlier date than that at which the surface gives way. The idea and the phrase of 'occult cancer' have become old fashioned, but there is to my conception much and grave meaning in the term. That the mischief pervades the system long before the process of external ulceration, is proved by the numberless cases in which the glands next in the course of absorption have previously undergone the first, if not the fatal, change. This is of itself regarded as a bar to the operation by most surgeons; but it should depend on the degree of induration and the state, especially the freedom from adhesion, of the principal tumour, whether they ought to be so regarded. Certain it is that the affection of these glands in every degree lessens materially the chance of success, and it is equally certain, that comparatively but few cases are the subject of consultation in which they are not more or less affected. I consider it therefore, a warrantable conclusion, that the affection of the consti-

tution is generally anterior to the ulceration of the skin. It may be said, that the operation has sometimes succeeded, as for example, in the practice of Mr. Hill of Devonshire, where the cancer was already open. I am by no means disposed to deny this.

I admit the possibility that under favourable circumstances the action of chronic, and especially of chronic morbid poisons, may be overcome by the mere force and duration of vitality and the nutrient powers of the system. But if there be a principle of universal application and acceptation in modern surgery, it is that which enforces the earliest possible removal of a true scirrhus. Whence is this derived but from repeated failures, attributed, and justly, to procrastination? Pain, the proper pain I mean of scirrhus, is perhaps the symptom to be regarded as that which most powerfully remonstrates against delay, being symptomatic of ulcerative action in the tubercle.

OF THE ACTUAL ORIGIN AND NATURE OF CANCER.

The formation and circulation of a poison in the blood is the only notion competent to explain the universality of the same species of malignant disease, by which I mean its simultaneous or successive appearance in remote parts of the individual. A contamination exclusively local favours the belief that the poison is generated in the part affected, and that the atmosphere of contagion is

for a period greater or less restricted to the contiguous parts. Ultimately however, there is reason to believe, that this is so disseminated as to alter the integral composition of all parts, solid and fluid, of the animal fabric, although the patient dies of exhaustion as in other protracted diseases. Diffused contamination, on the other hand, furnishes a presumption of the primary depravation, from whatever cause, of that fluid which visits, nourishes, refreshes, and repairs all parts of the machine, or of that nervous principle by which its resources, quality, and distribution are regulated.

The section of the scirrhous tubercle, while its texture is yet perfect, yields, as we have said, a slightly unctuous moisture. Its vessels are colourless, and incapable of being demonstrated by the injection of a coloured fluid. The inflammation of surrounding parts is always slowly excited, and in some rare cases, never. It does not provoke abscess like an inorganic substance, nor form a cyst in the surrounding texture, but excites chronic inflammatory action of a nature resembling its own in the glandular substance in which it is deposited. This in fact becomes condensed and in a degree incorporated with it, but the original tumour still preserves its character until it breaks up in the centre. The ulceration extends by degrees to its circumference, and the absorbents, becoming charged with the fluid poured forth by

the vessels of the eroded surface, convey it to the neighbouring glands, and there initiate a similar train of destructive operations. All this may take place before the disease extends to the skin, by a process of inflammatory adhesion and subsequent ulceration; and the absorbents being numerous in this texture, it becomes extensively charged with the poison. What we have said of the disposition of accidental excrescences and cutaneous lesions of the slightest kind to tuberculate, proves that a leaven of contagion exists, even though it be not spontaneously manifested in surrounding parts.

Probably when the ulcerative process is quickened and extended, as it always is, by the communication with the surface, the veins and excretory ducts opened in its progress, as well as the absorbents, become laden with the morbid secretion.

It is not the inflammation excited in surrounding parts by the irritation of a semi-organized tubercle, which is productive of the poison. If it were, the scirrhus could not remain stationary, as it sometimes does, for twenty years, without change of bulk or texture in the organ, and in fact harmless to the individual. Neither is the communication with the surface necessary to the production and fatality of the poison, for it sometimes destroys life before reaching this stage.

Nor is it consistent with ordinary observation that the poison acts upon the system during the integrity of the tubercle, since persons generally recover, and finally, in whom the disease is freely removed in this early stage. On the contrary, if the tubercle be softened and undergoing ulceration, *i. e.* absorption, the disease recurs, however freely the part be removed, in the majority of cases; although, perhaps, a few years' extension of the term of life may be gained by the operation. The formation of the poison therefore is concomitant not with the adhesive, but the ulcerative inflammation; and it is fair I think to infer that the matter of the poison is generated not by the action which forms the tubercle, but by the series of actions instituted to destroy and remove it. But it is probable that the vessels which deposited the tubercle are the parents of those which nourish it, and from which, in the ulcerative stage of inflammation, the morbid secretion is derived.

The character of the medullary species of cancer has some analogy to that of hereditary and inveterate scrofula, the difference seeming to consist in the addition of a destructive action *sui generis*, and proper to the cancer, to that of unassimilable deposition and growth, common to both. Scrofula seems to indicate the imperfection or disease of absorbents, which is shewn in negative changes, as the non-assimilation of the alimentary matter—the non-conversion of fluid into solid, and

vice versâ—and the non-removal of natural and vicarious superfluities. In the medullary cancer, the deposits are not the results of indolence in the absorbent, but of morbid activity in the arterial extremities; they are foreign, not accretions of original texture. The subdivisions of arteries are found in a discoloured and distempered state where they have been minutely examined, and a modern Morbid Anatomist considers the disease to consist in an inflammation of the arteries, and has named it accordingly '*Arteritis.*'

To me it has often appeared to be the modification of cancer by scrofula; *i. e.* a disease arising out of the combination of scrofula and cancer in the habit. I have seen the disease terminate life by scrofulous tubercles of the peritoneum and pleura, and abscesses of the mesenteric and lumbal glands, and have repeatedly noticed the subjects of it to be of the scrofulous temperament.

In the formation of an adventitious structure, in the process of its destruction which forms and propagates the poison, and in the varying and uncertain interval betwixt its formation and development, an analogy may be found in this to other morbid poisons.

When the matter of absorption is foreign to the system, as in lues or inoculated small pox, it serves only as a fomes, inducing or compelling the

secretion of a like matter by the vessels of the part, and the interval transpiring between the insertion and the production and development of the poison marks the local and constitutional boundaries.

Without supposing the scirrhus to be malignant in its origin, I am quite ready to admit constitutional predisposition in many cases, as when the disease is obviously supervening upon a slight local injury, or upon a tumour or ulcer of indolent character or long standing. In these, if in any, the disease, tumour or ulcer, may be considered to furnish a model, or physical prototype for the malignant action, and in process of time an elaboratory of the poison itself; but the distinction between a poison generated in the individual and that communicated, as those above named, from one to another, is sufficiently wide to release us from the difficulty of reconciling their laws and phenomena.

The various appearances of cancer modified by texture and situation, as it affects the several regions of the body, and of diseases resembling, and liable to be mistaken for it, I shall make the subject of another Paper.

PART II.

Read 28th April and 12th May 1829.

HAVING in the former part of this Paper concluded my remarks on the general history of those diseases properly termed malignant, I proceed now briefly to point out their various situation, and the peculiar circumstances which I have found to distinguish them in the several regions of the body.

They may be divided as follows:

1st. Of the malignant diseases of the Face and Head.

2d. Of the malignant diseases of the external conglomerate glands, viz. the Salivary, the Mammary, and the Testicle.

3d. Of the malignant diseases of the Organs of Generation in both sexes.

4th. Of the malignant diseases of the Trunk, including the Viscera; and the Extremities.

Under each division I shall shortly notice such diseases as are liable to be confounded with these. The more obvious modifications of them by the

varieties of texture affected, as the skin, cellular, mucous, serous, and fibrous membranes; the blood and absorbent vessels; lymphatic glands; nerves, bones, fasciæ, joints, viscera and organs of sense; and such observations on the medical and surgical management of these formidable diseases as my inquiries and experience suggest, will form the conclusion of the Memoir.

1. *Cancer of the Face.*

The malignant ulcer of the integument of the face commonly begins in a small warty tubercle, hard, irritable rather than painful, sometimes discoloured, so as to look like a dirt-spot. It is usually seated upon the side of the face, upon or between the zygoma and base of the lower jaw. It is also met with, though rarely, on the forehead, lacrymal and infra-orbital fossa, and sometimes the chin. In the first stage it is slow—noticed even for years before it arouses the alarms of the patient. This is especially the case when obscured by the whisker, or situated in parts not obnoxious to the razor. When fretted by frequent handling or wounded, or irritated by caustic and stimulant applications, it inflames superficially and becomes exulcerated, discharging a thin matter and scabbing by turns. It next acquires a broader base of induration, has a livid circumference, and an even and glossy surface of an unhealthy brightness. There is an occasional sense of heat and

soreness, but not amounting to pain. The health continues unaltered. The third stage into which the disease shifts, is that of extensive ulceration both in breadth and depth; the ulcer having an irregular margin and surface, and a profuse suppurative discharge of a peculiar odour. Exuberant fungous granulations are intersected by deep interstices or hollows, in which are lodged ash-coloured sloughs of the exposed fascia, muscles, vessels or nerves of the part. The countenance becomes disfigured by the encroachment of the ulcer upon contiguous parts and by partial paralysis. The pain is now frequent, if not constant, burning and shooting. The complexion, strength, and flesh undergo a gradual, but sensible change—the mind becomes irritable and anxious—appetite and natural sleep fail, the pulse is rapid and small, and spontaneous bleedings take place at intervals. Ultimately death ensues from exhaustion owing to interrupted deglutition and continual irritation; and for the most part it is accelerated by repeated loss of blood.

The persons whom I have known affected by this disease have been generally robust and florid, and not heretofore the subjects of any serious malady. The very gradual reduction of their strength and flesh,—their long freedom from pain—a good appetite and refreshing sleep until the advanced stage of ulceration, render them sanguine of recovery, and ready to impart their confidence

to any man who is ignorant and unprincipled enough to promise boldly. At the same time they become distrustful of the skill of better informed surgeons, from their silence and cautious evasion of home questions.

I should say that this disease was more incidental to the inhabitants of the country than of London, both in higher and lower life, and to the age of from fifty-five to seventy more than any other period.

This sore is a specimen of the most purely local cancer, and long after its ulceration is established it is so circumscribed, as to provoke the regrets of all parties, that it was not removed in that state which preceded the development of a destructive action. The application of caustic to the diseased part is in every sense injurious. The proper and the urgent remedy is a free excision, both in breadth and depth, of the indurated wart or tubercle which has taken possession of the skin of the face, at a period of life when our experience tells us that the sign of peculiar and indissoluble warty hardness is an almost unquestionable feature of malignity. The absorbent glands are seldom affected before ulceration, or at least so affected as to contra-indicate excision. In the second stage, above described, viz. of superficial ulceration, which is often long protracted, the patient becomes wearied by its obstinacy, and is subjected to

the annoyance of having his hopes alternately raised and baffled by the marked but transitory improvement in the aspect of the sore under every fresh application.

This is not a very common disease; and when it offers itself to the surgeon's notice as an irregular ulcer, with hard and elevated margin, its character is too certainly marked to admit of a doubt as to its nature. In this stage I do not believe that it admits of cure, and after trying a variety of applications I have come to the conclusion, that whatever irritates the cancerous ulcer, although it changes the surface, quickens the destructive action: that soothing applications which administer to the ease of the patient retard it, as the watery solution or epithem of opium, infusion of hemlock, &c. under a simple emollient ointment or poultice. The best tonic and at the same time unirritating ointments, are those of the oxyds of bismuth, and of zinc properly diluted.

2. *Medullary Tumour of the Face and Angle of the Jaw.*

This is sometimes seated in the cellular membrane, more frequently in the lymphatic glands. I have seen it occupying the situation of the zygomatic fossa, and also over the parotid gland, covering this and a portion of the buccinator muscle. For that in the first named situation, in conse-

quence of alarming arterial hemorrhages, I once tied the carotid artery of the same side. The man died on the eleventh day, before the separation of the ligature. He was the subject of chronic inflammatory disease of the chest, and upon examination of the abdominal viscera, one of the kidneys exhibited the medullary tumour, corresponding in its section exactly to that of the face; the other kidney was absorbed. In another case, in which the tumour occupied the whole cheek of a middle aged woman, I extirpated it entire, and the wound cicatrized with surprisingly little deformity. The disease however re-appeared after some months, and destroyed her. In neither of these cases were glands or bones affected. Such tumours are at first moveable, of slow growth,—little painful—they increase from the size of a small bird's to a goose's egg, when the skin is universally adherent, erubescent, and polished—their softness and appearance of pointing leads the inexperienced surgeon to mistake them for chronic abscesses; if they are punctured, blood only escapes. I have seen them situated on the hairy scalp. In this situation, which is rare, the subjacent bone is affected by the disease, or ulcerated by pressure before they reach any considerable size.

The lymphatic gland over the parotid, and the glands at the angle of the jaw are not unfrequently the seat of medullary cancer. The sec-

tion of these exhibits a compound character, the remaining firmness and natural colour of the gland, in parts, being mixed with the soft medullary matter, and giving it a mottled appearance. I assisted at the removal of one of these tumours in an elderly lady from behind the angle of the jaw. The disease reappeared in the cicatrix, and proved fatal very soon afterwards.

3. *Cancer of the Eyelids and Contents of the Orbit.*

This is a very strongly characterized disease, and very uniform in its character. It begins in the form of a hard, fretful, pimply ulcer upon either palpebra, or one of the borders or angles of the tarsi. It is discoloured by inflammation, and sometimes itches, discharges a thin matter, and scabs repeatedly. When it draws surgical attention it is an irregular sore, notching or puckering the border of the affected lid by removal of its substance, and creeping around the orbit. Its progress is slow, but after some time the conjunctiva of the palpebra becomes elevated, thick, and rigid. The ulcer at length environs the orbit and eyeball, and a luxuriant fungus overshoots, and together with the hanging remnants of the lids, buries the eye—so that, although the globe remains, it becomes difficult to be seen. The pain is itching and burning. The ultimate stage of the disease presents a horrible appearance. For a long time the globe remains (I have even seen the cornea

and humours clear) suspended, as it were geometrically, in the centre of the ruin—the malar and temporal bones are denuded, but an immense fungous mass encircles the orbit, and in part springing from it, is everted over the supercilium, nose, temple, and cheek. The globe at last perishes, but seems rather to yield to its complete insulation than to the destroying process which it has so long withstood. I have extirpated this disease when, as is rare, it has commenced in the loose conjunctiva, removing the entire contents of the orbit. The disease reappeared upon the inferior palpebra. I have also known it removed in the fungous stage after the destruction of the lids, by which only a temporary respite was obtained. The lacrymal gland is sometimes exclusively affected with scirrhus, and in this state, previous to internal ulceration, I have removed it—the patient remained for some years free from disease. I have since lost sight of him.

4. *Medullary Tumour of the Eyeball and Contents of the Orbit.*

This disease has been so repeatedly and fully described of late years by the cultivators of Ophthalmic Surgery, that I conclude it is well known in its leading features to most members of the profession. The peculiar metallo-lustrous or tapetum-like appearance of the fund of the eye is not

diagnostic: this is a fact highly important to be known. I have seen several cases in which this appearance was stationary, and the eye-ball dwindled, which might therefore fairly be presumed not to have been instances of malignant disease. It so happened, however, that long alterative courses of mercury or protracted salivations had been used in these cases, and the fact was consequently open to another explanation, viz. that they were examples of malignant disease, which had been arrested by this treatment. That the appearance I allude to is very analogous to that of the medullary tumour will be inferred, when I inform the Society that, (in the case of a lady who several years since recovered with the loss of sight, but is still in perfect health,) at a consultation, including some eminent members of the profession, the extirpation of the organ was overruled by one dissentient, although I had sat down to perform it on two several occasions. A case which more lately occurred convinced me, that adhesive inflammation of the choroid tunic terminating in a deposit of lymph which undergoes vascular organization between that membrane and the retina, presents an appearance so exactly resembling that of the incipient medullary cancer, as to put it beyond doubt that the real nature of the appearance, if not the occasion, is one and identical in both cases.

A young lady was brought to town from North-

amptonshire in whom it was so strongly marked, viz. the fawn-coloured resplendent surface with red vessels arborescent upon it, that I should certainly have considered it the nascent malignant disease, but for the circumstance of its having followed a wound with a pair of fine scissors a fortnight before. The instrument had passed between the margin of the iris and the ciliary body obliquely. Deep seated inflammation ensued, and blindness, after three days, became complete. The lens remained transparent, so as to permit this observation of the appearances described, for months. At length a cataract with a constricted pupil ensued upon the chronic inflammation of the iris, and the eye-ball, which had never enlarged, gradually shrunk.

The best diagnosis is founded on the increase of volume of the eye-ball or the contrary, prior to the giving way of the tunics. Even this, and loss of shape, and discoloured tumours of the sclerotic are, however, insufficient, as all may be produced by disorganizing choroiditis; but the progressive advance of the tumour to the cornea and the shrinking and sloughing of the latter membrane, which happens prior to the protrusion of the fungus, is decisive of all doubts. The hydrophthalmic enlargement, or the direct collapse by interstitial absorption of the contents of the eye-ball, are sure indications that the disease is not malignant.

Medullary cancer is frequently seated in the fatty membrane at the back of the globe. An extraordinary globular tumour is formed around the ball, of which the perished cornea forms the centre. It projects, stretching and so separating the lids, that they girt tightly the base of the enormous swelling. I have seen several children the subjects of this affection. The growth is sometimes confined to the upper or frontal aspect of the orbit. The upper lid is then prolonged and stretched over the globe so tightly that it is difficult, if practicable, to obtain a view of the latter. The medullary matter is of a granular or ricy consistence, and pervades and destroys the muscles, periosteum, and finally the bony vault of the orbit. I have seen its extirpation boldly performed; but its re-appearance has been almost immediate, and its progress quick to destruction.

I have extirpated the eye affected with medullary cancer in several instances; but I am not acquainted with any case in which the patient, who has survived two years, has not been revisited by the disease.

When a firm adhesion exists between the lining membrane of the orbit and tubercles of the globe or the nerve, even to the foramen opticum,—a point which cannot be well determined before the division of the conjunctiva,—the complete detachment of the morbid mass is very difficult in its performance, and unsatisfactory in its result.

Deep-seated disorganizing inflammation is very liable to be mistaken for this disease. The deep transverse section of the globe from the outer to the inner canthus, so as completely to evacuate its contents and sink the enlarged eye-ball, is an efficient remedy in this case, which is one attended with great disfigurement from protrusion, excessive vascularity of the conjunctiva, and agonizing sympathetic hemicrania on the same side with the diseased eye. In the medullary cancer this proceeding is of no avail. But if a doubt of the nature of the case exist, it should be practised. In the malignant disease the globe remains firm, and the section is followed by a small discharge of blood and black pigment or coagula stained with it; but if a discoloured fluid escapes, and the globe collapses, the disease is not malignant, and the cure is complete.

5. *Cancer of the Lower Lip.*

The commencement of this common and well known disease is in the interjacent cellular tissue of the mucous membrane and skin. The enlargement and induration render it conspicuous before the villous surface of the lip cracks transversely, and oozes a thin fluid, then exulcerates and scabs by turns, and ultimately ulcerates deeper and fungates. The patient is generally a healthy male of advanced years, and accustomed to smok-

ing. Pus sometimes escapes on a section of the fungus, but the stool or base of the tumour is hard, granular, or seedy; the skin and mucous membrane and the labial glands, now prominent and warty, are closely compacted together and indurated. As the ulceration proceeds, the induration extends, and the salivary glands beneath, and the lymphatic glands, at one or both angles of the jaw, become sympathetically enlarged and tender. The healing of this sore is attempted to no purpose, cleansing, destroying the surface by escharotics, covering it by an artificial scab, are all in turn fruitless. The perfectly clean or new surface cannot be brought to form skin. The operation after the manner of hare lip is simple, and in proportion to the loss of substance the cicatrix slight and the deformity little perceptible; but there is a mode of operating which I prefer to that for hare lip: and slow as the progress of the disease is, and little painful, the wisest way is to remove it freely in its early stage. Whatever mode be adopted, if it be not done freely, i. e. by cutting fairly beyond the confine of disease, it soon reappears. Though troublesome and occasionally painful, I have known it take years to affect the health. But to this there are exceptions. I had lately a middle-aged countryman under my care, whose lip had been operated on after the usual fashion, and healed a year or more; the cicatrix and the lip remained sound, but the hollow of the inferior maxilla was filled by an immoveable scir-

rhous tumour extending to the os hyoides and projecting so as to give the appearance of an immense elongation of the chin, which inflamed, ulcerated, threw up a bleeding fungus, and finally choked him in the act of swallowing.

The mode of operating which I alluded to above, is the simple removal by a full crescent-shaped section of the substance of the lip. The commissures of the mouth should, if possible, be left,—no suture is, of course, required. The contraction during the healing process under a double headed bandage passing over the vertex and occiput, so as to keep a little moistened lint or simple ointment on the cut surface, shapes and adapts the lip with singular neatness; and what is more remarkable, the cut surface takes a depth of colour and a plumpness, and a defined border which has much the appearance of the natural surface. I lately performed this operation, at the suggestion of Sir Astley Cooper, for an elderly gentleman from Grantham, who had twice undergone the hare-lip operation for the disease under an eminent provincial surgeon. Although the substance of the lip was removed to the frænum, it was interesting to observe how much its natural figure and appearance were restored. The disuse of suture and ligature obviates a very irritating and objectionable part of the treatment.

6. *Cancer of the Alveolar Membrane of the lower Jaw.*

This is a rare, but very marked form of malignant disease. I have seen it only in aged persons. It commences at the point of reflection of the membrane of the gum on the alveolus, or on the inner side of the gum at the root of the teeth, where the sore mouth, from mercury, is commonly first perceived. Small granular eminences or tubercles are formed, by which the membrane of the gum is raised and thickened into a small lump. The disease begins, in my experience, about the root of the last incisor or bicuspid, and thence gradually enlarges backwards to the middle molar teeth. Ulceration then ensues, the edges of the ulcer fungating and bleeding frequently,—it is slowly, but progressively phagedenic, destroying the soft parts, and ultimately, by ulcerative absorption, the substance of the maxilla, so as even to divide the bone. The adhesive inflammation of the contiguous membrane and soft parts during this process, and the tumefaction of the submaxillary gland give a peculiar elongation, breadth, and bulging of the jaw on that side, which is a characteristic feature of the disease. The imperfect opening and cleansing of the mouth, the difficulty of taking nourishment, and the horrible fetor of the discharge,—the constant gnawing pain with shoots darting upwards to the temple,

render this a disease of great suffering. It admits only of palliation by the frequent use of antiseptic and detergent gargles and lotions, as of lime-water, camphor, myrrh, borax, honey, &c. Oxy-phosphat of iron, and compositions of verdigris and caustic, are of no avail. Sarsaparilla dissolved in milk, boiled bread and milk, animal jellies, and soft nutritive mucilages are best adapted for sustenance and medicine.

I do not remember to have met with a description of this disease. My attention was first drawn to it in the person of an old gentleman residing in the City, in whose case I met Mr. Cline in frequent consultation. Mr. Cline accurately predicted the progress of the disease as it was verified in the sequel. I have since met with three similar cases. In one, in which its natural career was arrested by another morbid affection, the bone was found perfectly denuded of its periosteum, but not yet attacked by ulceration. No sign of ossific adhesive inflammation, as osteo-sarcoma, or exostosis, appears. The patient dies of exhaustion from deficient nourishment, pain, and repeated hemorrhages.

7. *Medullary Tumour of the Mouth and Fauces.*

I have seen several instances of fungoid tumour situated within the cavity of the mouth,—in one,

upon the upper maxilla, extending from the left alveolar process over the palate; in another, from the opposite alveolar process of the lower jaw, extending backward to the fauces and pharynx; in a third, and of this more than one instance, growing within and around the incisores teeth, and covering the symphysis of the lower jaw. The extirpation is attended with very free hemorrhage, and is invariably, in my experience, followed by the rapid reproduction of the tumour, which does not break up into ulceration, but increases to such an extent as gradually to destroy the function of the parts necessary to nutrition.

In one of the cases above alluded to the disease was supposed, by a scientific dentist, to be consequential upon an original disease of the jaw-bone. I was, however, perfectly satisfied from its character of its malignant nature, and that the disease of the jaw was a caries incidental to the progress and pressure of the tumour. The question was soon set at rest by the discovery of some insulated melanoid tumours in the integument of the body.

The difference between the two last described affections is, that this is growth, the other decrement of substance—the former being an eroding ulcerative disease, the latter a fungous production—the former a scirrhous, the latter a medullary cancer.

8. *Cancer of the Tongue.*

This is not a smooth and firm rounded tubercle, such as is often met with in this organ, but an irregular rugged knob in its first stage, generally situated in the anterior third, and midway between the raphé and one edge. It sometimes, but seldom, extends across the middle line, although it often extends alongside of it. The hardness is unyielding, inelastic, and the mucous surface puckered and rigid. It also gives to the finger and thumb of the surgeon the sensation of solidity, or of its penetrating the entire muscular substance, being perceived equally on either surface. Sharp shoots of pain are felt through the side of the affected organ, towards the angle of the jaw and ear. The disease tends to run backward towards the base or posterior edge. It sometimes acquires great bulk before ulceration takes place, so as to project the tongue from the mouth. In this state a female patient of mine was seen some time ago in St. Thomas's Hospital, in whom the permanent projection of the diseased organ beyond the widely distended lips was from three to four inches. Life was sustained for a time by nutritive injections. The ulceration often extends from the edge of the tongue to the membrane of the mouth and gums, when the elevated and distended membrane at length gives way, and ulceration is rapid. The surface of the ulcer

is very uneven, clean and bright granulations appearing in parts, and in others deep and sloughy hollows. The darting pain is very acute, but only occasional. There is a dull aching always present, and as constant a spitting as in deep salivation. The irritation is such as soon impairs the powers of life. It happens to strong and hitherto healthy persons, for the most part males from the age of forty onwards. There is generally an evening paroxsysm of pain, and the nights are much disturbed by the secretion accumulating in the throat, which excites cough. Often the patient is roused by a painful compression of the tongue falling between the jaws. The leaden hue of the countenance, the loss of flesh, and difficulty of taking food, although symptoms of the advanced stage of the disease, are observed long before the appetite or muscular powers fail in proportion. Frequent moisture with mild fluids, as tepid milk and water, or confectioner's whey, is grateful to the patient. Speech is much affected and painful.

Towards the fatal termination of the disease occasional profuse hemorrhages take place at shortening intervals, and alarm and weaken the patient, who ultimately dies tabid and exhausted, generally with symptoms of more extensive disease of the mucous membrane in other parts.

Of all diseased states this is one of the most pitiable. It admits of palliatives only, and these

very ineffective. I have seen only one case, wherein the ligature or knife had been employed, and in which I did not witness or hear of a recurrence of the disease before a twelvemonth had elapsed. In several, in which the ligature had been reported successful from the finished state of the cicatrix, the disease returned. The needle, when the ligature is employed, is passed beyond the centre of the disease through the sound parts, armed with a double thread. Excision is hardly safe, when practicable, through the sound parts. The actual cautery and the lunar caustic are decidedly aggravant of the malady. All stimulant applications, myrrh, alum, zinc, copper, and even borax, are painful and augment the mischief. The carbonate of iron, and alkaline carbonates are of no benefit in my experience. The black wash (ʒss. of calomel suspended by mucilage in ʒij. of lime water) is upon the whole the best application. Local opiates seldom act as anodyne. Neither mercury, steel, arsenic, iodine, prussic acid, bark, nor any other medicine have any permanent influence over the disease.

The period at which the sublingual and contiguous lymphatic glands become affected, and the extent of their change, are very variable. I have known them form the base of the tumour, the cauliflower fungus occupying half the tongue, i. e. two to three inches long and one broad; after death the jaw was found covered by the fungus.

The complete removal of the scirrhous tubercle by the knife or ligature, when so situated as to admit of it, at the moment of its discovery, affords the only chance of saving life.

Hence the vast importance of accurate diagnosis, especially since other affections of this organ have been and often are mistaken for it. An ordinary exciting cause is local irritation from a tooth, against the sharp edge of which the tongue rests from the loss of those adjoining, or a projecting mass of accumulated tartar between it and the gum. But this, like the pipe in cancer of the lower lip, can be only an occasional cause of inflammation or breach of surface, though the unhappy patient clings to a different opinion.

9. *Cancer of the Antrum.*

This most disfiguring and destructive disease begins upon the lining membrane, and first shews itself in a bulging of the cheek under and upon the malar bone. The tumour is elevated, circumscribed, and hard, and the integument has a blush of colour. The pain is inconsiderable when the patient is alarmed by the appearance and increase of the swelling. The nostril soon becomes closed on the same side, and the teeth loose; they fall out, or are extracted, and a copious oozing of purulent ichor takes place into the mouth. The introduction of the probe by the nostril or palate is

followed by free bleeding. If the alveolus is trepanned, a fungus shoots up, fills the opening, and covers the gum. Next, the palate becomes depressed, so that the arch on that side is lost, and either the eye-lids are closed, or the eye protruded; and completely amaurotic in either case. In the mean time the external swelling gains size, is quite immoveable, and the skin acquires a livid hue. Small veins are seen rampant upon it in great numbers, forming a network. There are commonly one or more depressions where the bone is absorbed. These break and discharge pus. The patient suffers a good deal of burning and darting pain. The ulceration extends until the mouth communicates directly with the surface, and fluids escape from the wide opening in the cheek, which is surrounded by a raised thick everted border of granulation; or the openings are less direct and fistulous, in which case the tumour acquires an enormous bulk, and the roof of the mouth is upon a level with the incisor teeth, and compresses the tongue. I have seen the disease extend its ravages in the direction of the nares, and destroy the nostril on the same side, instead of the cheek. It is needless to add, that the distress of the patient from the noisome discharge, which is very abundant, the increasing difficulty of taking sustenance from inability to masticate and fear of choking, the consequent emaciation, and loss of rest from the presence of constant febrile irritation, are soon destructive. Hemorrhages and colliquative sweat-

ings generally hasten the desired event. I have seen this disease arise in an elderly lady, who had large habitual callous ulcers on both legs of many years' standing, which she was content to keep within a certain limit, from a fear of the effects of completely healing them; a task which had been repeatedly attempted, however, without success. It ran its course, which was more than usually rapid, in about nine months from its commencement. A free alveolar opening was established, and frequent syringing with bland liquids was practised as soon as the disease shewed itself. The ulcer of the cheek, through which liquids passed from the mouth, would admit the points of three fingers many weeks before her death.

The examination of these cases throws no light upon their origin. It is a chaotic mass of coagula of lymph and blood holding spicula of bone.

It is common for persons to refer this disease to the extraction of a molar tooth, which they say was followed by swelling, discharge, and locked jaw of long continuance; but the probability is, that the disease in most cases had commenced before the tooth was extracted.

10. *Cancerous Fungus of the Nares and Antrum.*

This is a growth essentially malignant, to which the common lining membrane is subject, though

it is happily rare. It has no character of tubercle, but on the contrary, is a brittle or friable fungus, excessively vascular, growing from the whole surface of the cell. I have seen it commencing in, and proper to, the nares, but it is more frequently situated in the antrum. It distends the parietes enormously by its rapid growth, and although masses of it are cut or torn away, and the cautery applied to the cleared surface, it is reproduced again and again within the space of a few weeks. The separation is followed by excessive, even dangerous, hemorrhage. It is denominated improperly, the malignant polypus. I shall hereafter distinguish it from the fleshy polypus, with which it is sometimes confounded.

11. *Cancer of the Fauces and Pharynx.*

Scirrhous tonsil, like scirrhous testicle, is often talked of, but in reality seldom seen. But the broad papillæ at the root of the tongue adjoining the base of the epiglottis, the tonsil glands, and the mucous follicles of the common membrane of the glottis and pharynx, are each of them occasionally proper seats of the disease, beginning in tumour and induration, and terminating in fungus.

I have a specimen of a truly cancerous fungus filling one ala of the thyroid cartilage from the os hyoides and root of the epiglottis; and overhanging the rima glottidis and pharynx.

Scirrhous strictures followed by ulceration and

cancerous fungus are met with in the pharynx and top of the œsophagus in elderly persons, chiefly females, in my experience. They are productive of constant nausea, dry burning sensations in the throat and stomach, difficult breathing, frequent spasms and alarms of suffocation, and excessively impeded deglutition; upon the gentlest introduction of the finger or bougie, hemorrhage follows, which afterwards becomes spontaneous. The patient has a faded sallow countenance, a disturbed circulation, and is emaciated to a skeleton.

12. *Cancer of the External Ear.*

The ear is rarely an original seat of cancer, although not unfrequently attacked by the encroachment of an ulcer on the cheek. I have once however seen the upper third of the external ear the exclusive seat of an indurated sore, having every character of cancer, and amputated the diseased piece. The wound healed, and the patient, I believe, remains sound.

13. *Medullary Tumour of the Internal Ear.*

I have seen one example of this disease. The sufferings of the patient were severe from the confinement of its situation, and the displacement of parts; and the deformity was excessive. Externally, the tumour extended from the temporal fossa to the angle of the lower jaw, and internally, to the posterior nares and fauces. The mastoid

cells were apparently not invaded by the tumour. The jaw became locked, and a bleeding fungus filled the meatus auditorius. The same side of the head and face and the muscles of deglutition were paralysed. To this coma succeeded. The patient was nourished with great difficulty, and his death was accelerated by inanition. The post mortem examination, to my great disappointment, was peremptorily refused.

Of Diseases of the Head and Face, sometimes mistaken for Cancer.

1st. The *Crustaceous Herpes.* The simple description of this affection will sufficiently distinguish it from a cancerous sore. Inflammation, with general swelling, dilatation and superficial ulceration of the sebaceous follicles, owing to a diseased or morbidly retained secretion, and an oozing of thin matter which tends to form a honeycomb scab. It has for its commonest seat the alæ and tip of the nose, the upper or lower lip, and angles of the mouth. It is often difficult to heal, but has no disposition to become phagedenic. It spreads, but does not penetrate deeper than the cutis. It affects young persons chiefly and especially girls of a scrofulous habit, ill nourished, or who menstruate imperfectly, or with interruption. It is not however confined to such subjects. I have seen it in elderly seamen and others, naturally healthy, but suffering from short allowance, or un-

wholesome food. It is only in the most aggravated and obstinate forms of this affection that a suspicion of malignity can arise.

2d. A peculiar affection of the integument of the face resembling *elephantiasis*, is a very disfiguring and intractable form of disease. It is a purely local affection, and supervenes upon some morbid local condition. I had lately such a case under treatment affecting the left eyelids, cheek, and side of the nose. It was in a healthy young woman, and already of some years' standing, having commenced after the erysipelatous tumefaction attending an abscess from permanent obstruction of the lachrymal duct. I removed the redundant substance of the lower lid, by an elliptical incision parallel to the tarsus, so as to uncover the eye. The cellular membrane was enormously thickened, and gristly. The wound healed kindly, but the diseased state of the parts contiguous increased, and the girl was unwilling to have excision performed upon the other lid, or other diseased parts of the face; and indeed there was little encouragement to undertake it. Compresses, various applications, and medicines were of no avail.

3d. *Lupus*—a term applied indiscriminately to almost all ulcerative affections, whether herpetic or phagedenic, of the nose and upper lip,—I confine to those which are strictly of the latter de-

scription. It differs from the tettery or follicular ulceration before mentioned in being destructive of all textures in its progress; and it is this disease which leaves behind it the nibbled and puckered cicatrix, which is so often seen upon one or both of the alæ nasi, and by which the entire cartilages of the nose are sometimes destroyed. The subjects of this disease are, if young, of a palpably scrofulous temperament; and when of middle age or more, have often been rendered scrofulous by the injurious action of mercury. The disease begins with a red and elevated pimple; this soon breaks up into suppuration, to which destructive ulceration succeeds. The edges are elevated and inflamed, the ulceration tending more to penetrate than to spread. Thus it eats through the side of the nose, divides the upper lip, and although most frequent in this situation, I have seen it extend through the tongue by a gaping fissure in the direction of its length; or expose the lachrymal sac and os unguis and lower margin of the orbit; or upon the forehead, or the root of the zygomatic arch, angle of the lower jaw, &c., denuding the bone. Ulcers of the lupous character are indeed not unfrequent upon the neck, and other parts of the surface. The large puckered cicatrices, like those following deep scalds and burns, where the cellular texture has been entirely destroyed, are consecutive upon this form of sore in most instances. The great difficulty of arresting the morbid action, or if stationary, of healing

the sore, and the absence of any material disorder of the health, have led many practitioners, when the patient has reached middle age, to consider the disease cancerous. Appearances sometimes countenance this impression, but in general it bears a much nearer affinity to venereal. It is unaccompanied by sloughing and by fungous granulation. The surface is clean and bright, and the morbid process confined to that of ulcerative absorption. By this an immense chasm is sometimes produced, which extends to a frightful degree. I have seen it, in two cases, excavate the side of the face, the cheek and orbit being literally eaten away. Such examples are however rare. Whether, when the disease proceeds to this extremity, it deserves to be regarded as malignant, seeing that no stop can be put to its ravages by any mode of treatment hitherto known, is a question I cannot decide. It has none of the ordinary characters of cancer at any stage, and in its early stages, and even when advanced, in its less severe forms, continually yields to treatment. A solution of lunar caustic is the best external application, and the best internal remedies are arsenic, steel, and sarsaparilla in substance, according to my experience.

Children and young females have unequivocal marks of scrofula in the habit, when subjects of this disease, and perhaps in all cases the assimilative function is defective. The sublimate of mercury is sometimes useful. I may add, however, that

the health in this formidable disease is seldom materially impaired.

4. *Ulcers of the Mucous Membrane of the Mouth and Tongue, Fauces, Nares, &c.*

From these there can scarcely arise any difficulty in diagnosis. They are aphthous or tuberculous, scrofulous or venereal, or of the herpetic character which I have described as affecting the skin of the nose and upper lip especially, and there forming a scab or crust. I have seen the pits or fissures of the tongue following and even alternating with this herpes of the nose. A lunar caustic lotion, or the verdigris liniment, or the caustic itself in pencil, are the best applications, and arsenic, steel, and sarsaparilla the best medicines. Mercury is decidedly injurious. They are as little venereal as cancerous, but they frequently follow mercury, and are indeed a symptom, among many others, of mercurial scrofula.

The tongue and lips are not unfrequently the seat of venereal ulcers, as well as the nose and palate. These are secondary sores, with few exceptions. Sometimes however the tongue exhibits a genuine chancre, although it is not easy to explain the occurrence even among the most abandoned. The appearance presented by the large and deep fissures of the secondary ulcers, with their high edges falling asunder, and the irritable and

painful state of the surrounding parts, the sensible increase of destruction from day to day, and the fetid discharge mixing with the saliva, lead some to suppose them cancerous; whilst others—from their invariable aggravation by mercury in any but the mildest form, and unaided by generous diet and sarsaparilla—regard them as cachectic, and the result of mercurial action in a scrofulous habit. The employment of mercury requires greater delicacy both in the time and mode of exhibition in sores, whether venereal or cachectic, affecting the lips, tongue, and palate than similar sores in any other region of the body. In many it is contra-indicated altogether, while to others it is essential, even when the history renders their venereal origin disputable. But to pursue these observations would lead me too far from my subject.

5. *Globular Tumour of the Tongue.*

There is a tumour of the tongue, most like a marble in size and to the touch, situated deeply in its substance, and very uniform and unyielding in its surface. I have invariably found it disappear under the use of medicines calculated to improve the tone and secretions of the stomach, as the alkalies, with bark or steel. It is occasionally mistaken for scirrhus. From the complete absorption which the tumour undergoes, I should suppose it to be a cyst containing an albuminous fluid; but I have never wounded it.

6. *Polypi, Vesicular and Fleshy.*

The vesicular, or hydatid polypus, chiefly forming in the nares, presenting at the anterior or posterior orifices, or both; pyramidal, white or straw coloured, and attached by a peduncle or stalk to the pituitary membrane, springing from the fossa of the turbinated bones, or from any point of the surface of the nostril, side or septum, is not liable to the suspicion of malignancy.

The fleshy is flat, oval, or oblong, like a horse-bean, solid, opaque, and generally has a broader stalk of attachment. It is most common in the posterior nares, and hanging down upon the velum palati so as to close their openings, is productive of much annoyance to the patient. I have extracted eight or ten of these substances from the throat and nares of the same patient. They do not break readily, being firm fleshy masses.

Polypi are frequently formed in the meatus auditorius. When springing from or contiguous to the membrana tympani, so as to prevent its vibrations, they occasion complete deafness. There is a vesicular polypus auris, which takes the shape and length of the meatus, and with ordinary caution is extracted entire, like that of the nares. The fleshy is granulated, very vascular, and brittle, lies upon and conceals the drum, and does

not grow to any great size, but ulcerates and gleets profusely and offensively. This requires cautious treatment. I never saw any possessing a character of malignity.

Polypi of both species form in all the cells and chambers of the bones of the face and head. The lachrymal fossa and inner angle of the orbit, above and below the tendon of the orbicularis palpebrarum, is the place next in frequency to the nostril, at which they give external demonstration of their existence. Next to this, the antrum; and, indeed, the disease in the antrum generally presents these appearances in the nostril and at the orifice of the lachrymal canal, before that chamber is bulged externally.

Polypi occasion the same deformity by their increase in inaccessible situations, as was described in speaking of the malignant tumour of these parts. In the antrum, they protrude the cheek, lift the floor of the orbit, obliterate the nostril, and depress the vault of the palate. In the orbit they protrude the eye-ball, and projecting on either side, fix and compress it in the opposite direction. In the æthmoid, sphenoid, and frontal sinuses they loosen and even detach the bones from their connexion, and occasion a hideous deformity, with paralysis and coma, the consequences of serous effusion in the ventricles of the brain.

I consider the disease to be originally quite free from malignity. The vesicular or hydatidal is a thick-walled cyst, containing a gelatinous amber-coloured fluid, and destructive only by its situation, and the derangement occasioned to other and important parts.

The fleshy polypus too, being a perfectly curable disease, when situated so as to admit of removal, as in the nares and throat, I regard as of the same innocent nature in itself considered.

But in the deeper and inaccessible parts, where neither natural nor artificial openings admit of their removal in an early stage, they must prove ultimately destructive from their habitual reproductive tendency, their progressive extension from cell to cell, and the consequences thence ensuing.

The cancerous fungus which I have described as growing from an extended surface, not a point of the membrane of the nares or antrum, and which, by this circumstance, is marked as a truly malignant disease, I have heard surgeons denominate 'fleshy polypus'; with which disease it has nothing in common but its effect to distend and burst asunder the parietes within which it is contained. The character of the deep ulcerated openings which form in cases of polypous growth, and the heterogeneous mass left after the process is terminated by death, the sufferings of the patient, the noisome

fetor of the discharge, and the frequent and free hemorrhages preceding dissolution, which are incidental, not characteristic, features of analogy, have led some observers to conclude that the disease, although simple in its commencement, has taken on or induced a cancerous action. But I doubt if cancer is ever a consecutive disease; although I know many instances of its being chronic, and of cancer being set up at a particular period of life in persons who were the subjects of other disease, and of local injury, seeming to afford the occasional cause of its appearance.

The remaining divisions of my subject I shall postpone to a future communication.

EXPLANATION OF THE PLATES.

(at end of book)

PLATE I.

Exhibits the appearance of inflammation in the jugular vein of the horse seven days after the operation of venesection, as described by Mr. Arnott at page 48.

Fig. 1. The vein (the left jugular) removed from the body, and laid open from its posterior part.

a. Trunk of the vessel.

b. External posterior branch.

c. External anterior branch.

d d. Thickened proper coats of the vein.

e e e. Thickened and very vascular cellular coat; corresponds to the seat of puncture on the opposite side of the vein. From this down to *g*, the vessel filled with granular looking coagulable lymph.

h. Sudden termination of the roughened red internal surface, and thickening of the coat of the vessel at the entrance of the branch *k*.

i. The vein in a healthy state, with some blood brought in by the communicating branch *k*.

l. Firm coagula of blood filling the upper portion of the jugular, and its branches *b* and *c*.

Fig. 2. A portion of the anterior surface of the vein, stripped of its cellular coat.

a. Seat of recent puncture which excited the inflammation of the vein, the aperture filled with granular looking lymph.

b. Situation of a former puncture.

PLATE II.

The appearance of the iliac and femoral veins in Dr. Lee's first case of Phlegmasia Dolens. p. 188

PLATE III.

Representations of the thigh-bone referred to by Mr. Salter in his case of fracture, accompanied by cancer in the breast. p. 192.

END OF VOL. XV.—PART I.

G. Woodfall, Printer, Angel Court, Skinner Street, London.

MEDICO-CHIRURGICAL TRANSACTIONS.

VOL. XV.—PART II.

CONTENTS

OF

VOL. XV.—PART II.

Page

VIII. On the Anatomical Characters of some Adventitious Structures, by Dr. Hodgkin 265

IX. Observations on the Statement made by Dr. Douglass of Cheselden's Improved Lateral Operation of Lithotomy, in a Letter to Sir Astley Cooper, Bart., F.R.S., by John Yelloly, M.D., F.R.S..... 339

X. Pathological Researches on Inflammation of the Veins of the Uterus, with additional Observations on Phlegmasia Dolens, by Robert Lee, M.D., Physician Accoucheur to the British Lying-in Hospital. 369

Explanation of the Plates. 437

List of Donations..... 440

Index 449

ON THE

ANATOMICAL CHARACTERS

OF SOME

ADVENTITIOUS STRUCTURES.

BY DR. HODGKIN.

(See plates IV & V at end of book.)

Read March 10th, 24th, and May 26th, 1829.

THE principal object of the paper, which I have now the honour to submit to the consideration of the Medical and Chirurgical Society, is the description of the Anatomical Characters of a large and important class of Structures, which, though often met with in various parts of the body, are foreign to it in its healthy or natural state, and consequently belong to those formations which are included under the general term of Adventitious or Accidental. Having for some years enjoyed the opportunity of examining a great variety of these structures, my attention has been particularly directed to the investigation of certain anatomical characters which arrested my attention, and appeared to indicate general laws of formation pervading the whole class.

Without further preface, I shall commence with

the examination of those serous membranes which are occasionally found in various parts of the body, as the result of irregular or accidental production.

The bladders, sacs, or cysts, which constitute some of the forms in which these adventitious membranes are met with, have been often confounded with other circumscribed collections of fluid generally known by the name of Hydatids, and by most supposed to be possessed of a separate and peculiar vitality.

I confess that I am myself inclined to consider the investigation of the nature and habits of these latter bodies, or vesicular worms, as they have been called, as belonging to the subject of parasitical animals.

Whether you are disposed to go with me thus far or not,—whether you admit the existence of a separate life in those perfectly detached spheroidal bladders which have been called acephalocysts, and which are possessed of such an astonishing power of multiplying their species,—or whether you prefer the opinion of those who are unwilling to concede to them the attribute of a distinct life, the importance of a marked distinction being drawn between them, and the adventitious serous cysts, of which we have now to treat, will remain absolutely the same. I am induced to lay the stronger stress on this distinction, from the cir-

cumstance that one or more distinguished pathologists, both by theory and practice, by precept as well as by example, have taught that the distinction was a mere verbal quibble. I conclude that it is needless for me here to describe the characters of true hydatids or acephalocysts, their mode of production, the changes which they undergo, and, above all, the influence which they exert on surrounding parts, in order that the Society may fully perceive and appreciate the essential difference which in all these respects there exists between them and serous cysts of accidental or adventitious production.

The adventitious serous membranes, as I have said, have been very often described by pathologists under the name of hydatids; and without at present noticing the confusion into which modern authors have fallen by the use of this term, I cannot give a better idea of the vagueness with which it has been employed, than by observing that Lecat declared that the eye was a perfect hydatid, and that an hydatid was an imperfect eye.

The membranes in question have also been designated cysts, but this term has been used in as vague a manner as the word hydatid, and though in many respects it is a very convenient one generically to express the envelops of various fluids and other matters occasionally found in the body,

still some further definition must be given when we wish specially to point out particular sacs, which owe their origin to the adventitious production of serous membranes. By some pathologists, cysts have been divided into those which are formed about the bodies which they contain, whether these bodies have been produced in the system, or have been introduced from without; examples of which kinds of cysts we see in the condensed cellular membranous envelops to true hydatids; to the masses of hair and fat formed in the ovaries; to the remains of tubercles and abscesses; and also in the capsules which shut up bullets, shot, and the like.

The other division of cysts comprises those sacs which produce, as well as circumscribe, their contents. The cysts of which I am now to speak, of course belong to the second division, but as there are also many kinds of cysts to which the definition is equally applicable with adventitious serous membranes, it will be necessary that I should exclude them from the class with which we are at present engaged.

As far as I have looked into authors who have treated on this branch of morbid anatomy, it appears evident that there has been so much confusion and obscurity connected with it, that I am convinced that it is one of considerable difficulty, and I must confess that I enter upon it with much

diffidence, lest, in endeavouring to point out and avoid some palpable errors of others, I should fall into similar inaccuracies myself. For my present purpose it will suffice as briefly as possible to point out some of those cysts, which having been brought together by some pathologists with the adventitious serous membranes, must now be distinguished from them, since they do not participate in the peculiarities which I am about to describe, but are possessed of a pathological character of their own, which entitles them to be spoken of separately.

1stly. I need scarcely remind you that the true hydatid is a sac which secretes or produces the fluid which it contains.

2ndly. Various cysts are not unfrequently met with beneath the common integuments, and are apparently very intimately connected with them, and contain a sebaceous, or meleceritious, or artheromatous, or other collection, which is at once both the product of the sac, and the cause of its distension.

3rdly. Cysts are occasionally found secreting the materials which they contain, which owe their origin to canals of which the orifices have been more or less completely obstructed: such are the cysts in the labial glands, ranula, those in the pancreas, and those which we so often find on

the surface of the kidneys, and occasionally on the liver, and which, on account of the delicacy of the structure in which they are situated, we judge rather from inference than from demonstration, to be occasioned by the obstruction of an excretory canal.

4thly. Other cysts belonging to this class, but which are not to be confounded with the adventitious serous membranes, are produced by the distension of cells naturally existing in the body, but of which the contents, from unexplained causes, have become morbidly increased, and not unfrequently at the same time more or less changed in quality. Of this description are the enlarged vesicles of De Graef, which, though probably never so much enlarged as to constitute Ovarian dropsy, as some have supposed, are nevertheless frequently met with many times larger than their natural size.

Cysts, which, from the description that has been given of them, in all probability produce as well as inclose the fluid found within them, are occasionally met with in the thyroïd gland when enlarged so as to form the disease known by the appellations of goitre and bronchocele. These cells very probably depend on the original structure of the thyroïd gland, but we know so little positively of either the structure or the functions of this body, that it would be rash to offer a decided opinion on this point.

Such are the principal forms of cysts, which the circumstance of their producing, as well as enclosing, the matters found in them, have in some arrangements been classed with the serous cysts. As it has been my wish merely to point them out on the present occasion, sufficiently to ensure the distinction which I wish to be kept in mind, I shall now proceed with the subject more immediately before us.

The adventitious serous membranes, like those naturally existing in the body, form completely shut cavities. As far as it is in our power to ascertain, they are wholly, or at least with but very few exceptions, the result of an entirely new formation dependent on some anomaly in the function of nutrition, but respecting the precise nature of which we are completely in the dark, and were I to offer any thing respecting it, I could do so only as a conjecture, which I am unwilling to mix up with the facts which it is my desire faithfully to lay before the Society. On the present occasion I shall divide the serous cysts into two classes. The first comprising those which are simple, and for the most part solitary, but which, if accompanied by one or more similar membranes, owe this association to the accidental circumstance of the same cause which produced the one, having likewise operated in its neighbourhood, rather than to the sac possessing the remarkable property

of giving origin to new growths having the same character as itself.

Respecting the first class, I shall have but little to offer. If there are any of the adventitious serous membranes which can be said to be formed from a pre-existing structure, and not to be the result of a new formation, they are to be found in this class, since it is possible that some of them may have been produced by the distension of one or more of the cells of the cellular membrane, which a partial inflammation or some other cause may have shut off from their communication with the adjoining cells. This supposition is the most plausible in the instance of the adventitious synovial bursæ, such as are formed upon the patella in persons who are accustomed to kneeling, and the ganglia formed in the neighbourhood of the sheaths of tendons.

Serous cysts of the simple class are formed in various parts of the body. Without entering into a minute description of them, I shall enumerate and describe some of the most remarkable.

Within the cranium of a female, who had not been observed to present any cerebral symptom, I noticed a thin and delicate serous cyst, perfectly circumscribed and filled with transparent colourless serum. It was about the size of a nut, and

was situated at the base of the brain, not far from the tractus opticus.

Clusters of serous cysts are often found in the plexus choroides, and notwithstanding their number, I am quite disposed to think that they belong to the class of simple cysts, of which I am speaking, since their number does not appear at all to depend on any disposition in the parietes of these cysts to produce others of an inferior order.

These serous cysts in the plexus choroides are manifestly vascular, they seldom exceed the size of small currants, and are often much smaller. Yet, Dr. Hooper has given a plate of a very interesting case of this kind, in which the vascular cysts in the plexus choroides were nearly as large as eggs. It has been supposed by some that these cysts in the plexus choroides are formed by the dilated extremities of vessels; some persons fixing on the arterial system, some on the venous, and others on the absorbent. It has even been attempted to prove this fact by blowing air into these vesicles, through the vessels in question; but were the possibility of doing so fully proved, which after all appears to me to be very doubtful, it would by no means be a demonstration of the origin which has been attributed to them, since it was long ago shewn by Meckel, that the vesiculæ seminales may be inflated from the veins or absorbents of the pelvis.

Simple serous cysts are occasionally formed in the eyelids, and since they form a very legitimate subject for surgical operation, they merit particular attention. Some are found along the edges of the tarsi, where they seldom acquire more than a moderate size, and their removal is effected with comparatively little or no difficulty. Those which are situated more completely in the body of the eyelid, and which at times extend pretty deeply into the orbit, are more difficult in their treatment, and more serious in their consequences. I remember to have seen a young woman in La Charité, under the care of Baron Boyer, who was affected with a cyst of this kind of nearly the size of a chestnut. From the depth to which it extended into the orbit, it was not thought expedient to attempt the total removal of the sac, but it was hoped that when the greater part had been removed, the remainder might be obliterated by adhesive inflammation; but instead of this result being obtained, a high degree of irritative fever carried off the patient in a very few days.

Simple adventitious serous cysts are stated to occur sometimes in the lungs. Laennec mentions one or two instances of this kind, but says that they are more frequently met with in the lungs of inferior animals, and in those of the ox in particular, than in those of man. I have never had an opportunity of witnessing a case of this kind

myself, and shall therefore not attempt to describe them.

It would appear, the female mamma is at times the seat of simple adventitious serous cysts, and that the cure of the tumours to which they give rise may often be effected by allowing the contents to escape, when adhesive inflammation, either spontaneously or artificially excited, unites the sides of the cyst, and obliterates its cavity. The most frequent seat of these cysts, and the last of which I shall here speak, is in the neighbourhood of the uterus, but more particularly in the folds of the broad ligament; or, intimately connected with the ovaries, if not imbedded in their substance.

Cysts of this kind at times acquire a very large size, and constitute one of the forms of what is commonly called Ovarian dropsy.

I shall now speak of the second class of adventitious serous membranes, or of those whose parietes present the very remarkable property of producing other cysts of a similar character with themselves, or morbid growths, which, if they do not present, strictly speaking, the character of cysts, are nevertheless referrible to the same type or mode of formation. Cysts of this kind, like those of the preceding class, are found in different parts of the body, but they are by far the most fre-

quently met with, acquire the largest size, and present the greatest variety of appearances, in the neighbourhood of the uterus, but more especially in the ovaries and the folds of the broad ligaments. I shall therefore commence by describing these, because the large scale on which they may be seen renders their structure the more easily intelligible.

Since neither the nature of this affection, nor that of the parts of which we are now speaking, as its seat, are calculated to lead to a speedily fatal termination, it rarely happens, that we obtain an opportunity of witnessing the early stages of this form of encysted dropsy; but on the contrary, it generally happens, that the external or superior cyst has acquired a very large size, giving in some instances the most unwieldy dimensions to the abdomen; and although the operation of paracentesis may have shewn, that the fluid by which the cyst was at first filled, was of a decidedly serous character, it is often very materially altered before the fatal termination of the case, when the fluid is often of a mucous or of a sero-purulent character, and when it frequently happens, that the cyst itself has to a great degree lost the characters of a serous membrane.

Its parietes appear to be rather fleshy, or coriaceous, than membranous; and the internal surface becomes more or less generally roughened, as if

by ulceration or abrasion. The most important feature which it presents, is the appearance of tumours and elevations dispersed more or less thickly over the internal surface, and which, notwithstanding the very great variety which at the first view they seem to present, are nevertheless referrible to one general mode of formation.

I shall commence with the description of that form which is intermediate between the two extremes; not merely because I shall more readily proceed from this as a standard to the explanation of its modifications, but also because the peculiar structure is, in this form, the most distinct and intelligible.

In this form we observe on the interior surface of the principal cyst elevations more or less rounded, and of various sizes, projecting into the interior of the cavity, and covered by a membrane, which is continuous with the lining of the principal sac.

On making an incision into these tumours, we find that they also consist of cysts of a secondary order, filled by a secretion, often serous, but almost as frequently mucous. It is not, however, merely by this secretion that these cysts are filled. On looking more minutely into them, we shall generally find, that from one or more points on the interior of these cysts there grows a cluster

of other or tertiary cysts, upon which is reflected the lining membrane of the cyst in which they are contained. Cysts of the secondary order not unfrequently afford as complete specimens of a reflected serous membrane as either the pericardium or the tunica vaginalis, the lining membrane of the containing cyst corresponding to the reflected portion, as that covering the contained bunch of cysts does to the close portion.

The proportion which the contained cysts bear to the cavity of the membrane reflected over them, is extremely various. Sometimes the fluid, especially when it is of a serous character, nearly fills the containing cyst, whilst the bunch of cysts is of very inconsiderable size. At other times, the superior cyst is almost entirely filled by those of the inferior order; in which case we may generally find, that the nodulous or tuberose elevations, which we may have observed on the exterior of the containing cyst, are occasioned by the unequal development of the contained cysts; for those which have grown most rapidly and have attained the largest size, forcibly dilating that part of the cyst which is reflected over them, produce a kind of hernia at that part. It sometimes happens, that the distension occasioned by the growth of the contained cysts is sufficient not only to disturb the even surface of the containing cyst, but actually to produce a rupture, which admits both of the escape of its fluid contents, and of the unrepressed

growth of the secondary or tertiary cysts, which took their origin from its internal surface. The inferior cysts themselves are found to contain a serous or mucous secretion, and very often to produce another order of cysts, possessing the same character with themselves. It is certainly by no means surprising that these cysts of different orders, which sometimes present the appearance of delicate and pellucid sacs filled with clear and colourless serum, and possessed of the astonishing power of giving rise to an almost innumerable multitude of cysts presenting the same character with themselves, should at the first view have been confounded with true hydatids; but it is no less surprising, that a little careful inspection did not at once irrevocably remove the delusion.

First.—Because the bunches or clusters of secondary cysts are invariably and permanently attached to and continuous with the internal surface of the superior cysts, in which they are contained; and,

Secondly.—Because delicate vessels are seen ramifying from the one upon the other.

The cysts which I have been describing as formed on the internal surface of the first-formed cyst, at times pour out a part of their contents into the interior of the larger cyst, either in consequence of an extensive rupture produced by the develop-

ment of a contained order of cysts, as I have before described, or by small apertures, which likewise appear to be the result of distension. In both these cases, but especially in the latter, the opened cysts bear a considerable resemblance to mucous follicles on a large scale, and appear to be the principal source of the very copious and rapidly produced mucous secretion, which is a characteristic feature in many cases of ovarian dropsy.

This mucus bears a very close resemblance to that furnished by the follicles of Naboth, and is frequently so viscid, that it passes with difficulty through the canula. The membranes of which these cysts, whether of the second or third order, are formed are liable to inflammation. The product of this inflammation, like that of inflammation which takes place in the serous membranes naturally belonging to the body, may either be of the plastic or of the inorganizable kind. In the former case, it leads to the formation of adhesions between the close portion of the membrane, or that which constitutes the contained cluster of cysts, and that portion which is reflected over them, forming the parietes of the containing cyst. It is the formation of these adhesions which so frequently renders it difficult to demonstrate the structure which I have been describing. When the product of inflammation is of the inorganizable kind, we find a secretion more or less puriform in its characters. This secretion is sometimes found

confined in one or more of the secondary cysts. At other times, it finds a way of escape into the interior of the principal cyst, and thus contributes to the variety in the appearance presented by the fluids drawn off in the operation of paracentesis for the relief of ovarian dropsy. This, however, is not to be regarded as the sole cause of the occasional puriform appearance of the fluid evacuated by this operation. It is doubtless in some instances to be attributed to the sort of ulceration or abrasion to which I have already alluded as taking place on the internal surface of the principal cyst, and which we find both in that part which is formed by the cysts developed in its parietes, and in that part of the parietes which happens to be free from them, though it is most frequently met with in the former situation. Such are the most striking characters of that form of cysts which, for the reasons which I have stated, we may regard as affording the type of the second class of adventitious serous membranes. The circumstance upon which I wish to lay more particular stress, is the production of more or less numerous clusters of cysts arising from different points on the interior of the superior cyst.

The cysts composing these contained clusters have neither the narrow necks or peduncles which mark one of the varieties into which this species of production declines, nor, on the other hand, those broad and extended bases, and that flat and com-

pressed form which mark the opposite variety in which the encysted form, and more particularly the disposition to produce a reflected membrane, is less easily made out.

I shall first describe that variety which is characterised by slender peduncles. This form presents us with all the gradations from the form which I have already described, down to the slenderest filaments.

I have stated, that it is at particular points on the internal surface of the superior cyst that the clusters of inferior cysts take their origin. It sometimes happens, that the number of cysts forming the cluster is so great, in proportion to the space which they occupy, that, like trees too thickly planted, they interfere with each other's growth. Their development is more or less limited to an increase of dimension in length. Yet as their free extremities are allowed to diverge, we sometimes find the slender peduncle gradually dilating into a pyriform cyst. At other times, the dilatation does not take place till near the extremity of the peduncle, and then produces a cyst more nearly resembling a grape or currant. At other times, no dilatation takes place, probably from the cavities having been wholly obliterated.

The pedunculated cysts, or the extreme of this variety in the form of filaments, are either pro-

duced singly, but in the closest approximation from a particular part of the containing cyst, or they may be attached to it by a common peduncle, from which the proper peduncle of each proceeds. These elongated productions sometimes become highly vascular, and, in the defect of an internal secretion, contribute largely to that which occupies the sac into which they project. Sometimes, on the contrary, they are very feebly organized, and appear ultimately to lose their vitality, in consequence of the kind of strangulation which they receive at the narrow neck by which they are attached to the containing cyst.

It would appear, that the pedunculated cysts and filaments which have thus lost their vitality, are a pretty frequent source of irritation to the serous membrane reflected over them, which constitutes the containing cyst; the product of the inflammation thus excited is of the inorganizable kind, and often forms a thick and grumous substance, which sometimes may be washed out from the bunches of filaments, but at other times these come away with it, in the form of shreds.

The bunches of slender pedunculated cysts, and the tufts of filaments almost resembling tassels, sometimes proceed at once from the inner surface of the principal cyst, but they are more frequently met with growing from the interior of the secondary cysts.

I shall now proceed to notice that variety, in which the secondary cysts, so far from being attached by slender peduncles, have that broad attachment and flattened form, which, without the assistance of the intermediate gradations, could scarcely be referred to the type which I have drawn. The secondary cysts in this variety, as well as in the two former, are collected in clusters on the parietes of the superior cyst, but they appear to produce a circumscribed and more or less considerable thickening of the parietes rather than a prominent tumour covered by a reflected membrane; they constitute however perfectly shut cavities, acquire at times a considerable size, contain in some instances a serous, and in others a mucous secretion, and produce in their parietes inferior orders of cysts, having like themselves broad bases and flattened forms. From the extent of their bases, the secondary cysts in this variety occupy proportionably a much larger space on the internal surface of the containing cyst, and by their development, although they increase its size, they seem more completely to encroach on its particular cavity. In cutting into a tumour composed of this form of cysts, we may find, it is true, several cavities of considerable size, but we shall probably not find the greater part of the fluid collected into one particular cavity. Hence, in this variety of ovarian dropsy, fluctuation is often obscure, and the relief afforded by paracentesis only partial and trifling. I am not aware that the se-

condary cysts, in this variety, ever lose their vitality from defect of nutrition, but if such an effect be ever produced, it cannot be the result of so limited and partial a cause as that which we have seen to operate in the preceding variety. There is another point of difference no less worthy of remark as distinguishing this variety from the two preceding, that is to say, from the standard and the pedunculated variety, which consists in the arrangement of the subordinate parts. In the two last-mentioned forms, in consequence of the limited extent of the spots, whence the secondary productions take their rise, they necessarily acquire somewhat of a radiated arrangement, whereas, in the variety with which we are at present occupied, it is difficult, if not impossible, to reduce its internal structure to any definite arrangement.

It remains for me to say a few words more respecting this form of ovarian cysts, before I proceed to speak of the serous cysts occurring in other organs. Although we may observe three well marked forms which I have described in ovarian serous cysts of the second class, and though, for the most part, each individual case more particularly affects one or other of these forms, yet it sometimes happens that two or all three may be found in the same superior cyst, yet even then one form seems to predominate. Those cysts which contain others of the third form, are the most firm and fleshy or parenchymatous.

There seems to be an hereditary disposition in some females to the production of the serous ovarian cysts. Even in these cases they are mostly unaccompanied with any constitutional taint, that is to say, other parts of the body are not simultaneously affected with similar productions. It is even more common for one ovary to be singly affected, than for both to give origin to this form of cysts; nevertheless it does sometimes happen that we meet with cases of double ovarian dropsy, but in many, if not in most of these, there is likewise a complication with some one of the diseases commonly called Malignant, of which I am about to speak. It is by no means easy to say what are the exciting causes of this form of ovarian dropsy. Though in many instances the patients refer the commencement of the disease to parturition; yet it is far from being uncommon for unmarried or barren women to labour under this affection. The tumours and growths allied to ovarian dropsy, of which I shall presently speak, as formed in other parts of the body, can often be referred to some mechanical injury, but in the case of organs, which appear to be so well protected as the ovaries, it is more difficult to conceive the possibility of such an exciting cause.

Something may possibly be ascribed to the natural and periodical changes which these organs in common with other parts of the female genital system doubtless undergo.

Another circumstance which deserves some consideration and inquiry, is the far greater size, and greater abundance of the contents of the cysts formed in and about the uterus, than those of similar cysts formed in other parts of the body. Two or three causes, I presume, mainly contribute to this result. The first which I shall mention, is the obvious fact, that the system on which, in the case of ovarian dropsy, these cysts are implanted, is naturally disposed to obey a stimulus which requires an increased supply of nutritive matter, and which gives rise to a proportionably rapid growth. In the next place may be mentioned the abundant supply of blood which the parts habitually receive; and thirdly, and, as I believe, principally, must be noticed the position of these parts situated in the abdomen, and consequently exempt from all pressure or restraint calculated to limit their development.

This last point appears to merit an additional attention from the suggestions which it excites in relation to the operation of paracentesis for the relief of this form of dropsy.

As long as the distress and inconvenience of the patient will allow us to defer the operation of paracentesis, it is doubtless desirable to do so, since even the pressure which the full sac itself is able to exert on its contents, must have a tendency both to diminish the rapidity of secretion, and

retard the growth of the inferior order of cysts. It is well known that the oftener the operation has been performed, the shorter is the interval which elapses before a repetition is required; and in the course of a very few weeks a quantity is produced as large, if not larger, than that which had been many months in accumulating prior to the first operation.

The next and last point of which I shall speak in connexion with ovarian cysts, is the degree of irritation which they occasion in the surrounding parts.

This irritation is generally, in the early stages at least, remarkably slight, indeed it is very probable that it can scarcely be said to exist until some of the causes have been brought into action; which I formerly described as producing either the inflammation or the death of a part or parts of the adventitious growth. I have frequently been astonished, at the comparatively slight and recent peritoneal adhesions, by which some of the largest ovarian cysts have been attached to the surrounding parts. This circumstance is not only a striking feature of difference between this affection and others closely allied to it in structure, but it is of the utmost practical importance with reference to the only mode of treatment hitherto devised, which is at all adequate to the cure of the disease, —I mean the absolute extirpation of the diseased organ.

Adventitious serous cysts, assuming the form of reflected membranes, are also met with in the male organ, corresponding to the ovary; that is to say, in the testicle; it constitutes that affection which has been designated by some hydatid testicle.

After what I have already said respecting the confounding of serous cysts with true hydatids *, it is needless that I should again point out the decided characters which distinguish these two forms of cysts.

The serous cysts which are developed in the testicle are very far from attaining the same size as those which are produced in the ovaries, yet at times they distend the testicle to a size superior to that which it acquires under any other disease, fungus hæmatodes, perhaps, alone excepted. Like the affection of the ovary, of which we have been speaking, this encysted disease of the testicle appears to be unaccompanied by any constitutional taint; and when the affected organ has been removed, the patient has not been troubled by any return of the complaint. This disease is much more rare than the corresponding disease in the female, and I am not aware that observations have been collected which tend in the least to shew, that there is any thing like an hereditary predisposition to this affection.

* True hydatids are sometimes found in the testicle.

In the encysted disease of the testicle, the fluid bears so much less a proportion to the solid parts, than is the case with the encysted disease of the ovary, that it affords an easy transition to those tumours which, though for the major part solid, nevertheless affect the structure, bearing the closest resemblance to, if not absolutely identical with, the compound serous cysts, the formation of which I have already attempted to explain. In fact the difference between them so far as the proportion between the fluid and solid parts is concerned, appears, as I have already hinted, to be very much influenced by the degree of pressure to which the exterior of the adventitious growth is subjected.

There are two other situations in which the class of adventitious serous membranes, with which we are now occupied, is occasionally met with, and respecting which, from the predominance of the fluid parts, it may be proper for me to say a few words, before I proceed to the consideration of those growths which, from the predominance of the solid parts, are more commonly styled tumours.

The female mamma, and its immediate neighbourhood, are occasionally the seats of the adventitious formation of serous cysts, assuming the form of reflected membranes, and bearing the closest resemblance to those which I have already mentioned as occurring in the testicle, and having

in consequence received a similar appellation, and been called with equal inaccuracy hydatid breasts. The cysts formed in a breast thus affected contain bunches of secondary cysts, and a fluid sometimes serous, sometimes very nearly resembling synovia, and at other times of a mucous character. It does not appear to be an affection accompanied by any constitutional taint, or to be at all malignant in its nature, the disease being wholly removed by the removal of the part. I shall not dwell longer on this form of disease, since these cysts are generally accompanied by others which give rise to a more solid structure.

Bunches of cysts are occasionally formed in the eye; they are more interesting from the importance of the organ which they affect, and from their situation, so remarkably favourable for the inspection of their progress, than from the size to which they attain.

They cannot, however, fail to excite very serious apprehension, since in their commencement it must be difficult, or even impossible, to distinguish them from the commencement of a malignant disease. Though they should not present this character, and therefore not endanger the life of the patient, they will at times completely deprive him of the use of the affected eye. The production of these cysts in the eye may be

sometimes traced to external violence, at other times the exciting cause is more obscure.

I have now to solicit particular attention to the different forms of Heterologue deposits, which may be referred to the same general laws of formation which I have endeavoured to explain when speaking of ovarian dropsy. Many of the accidental formations have been called heterologue, to denote their dissimilarity from those structures which naturally exist in the body. They are marked by a certain degree of uniformity of character, and more particularly by their mode of formation. Most of them have been styled malignant; and they may be reduced under the four following heads:—

The first, comprising those cases which consist in the production of well-formed cysts, generally assuming the character of reflected membranes, unaccompanied by constitutional taint, and commonly called hydatids. They may be considered as typical of the order at the head of which they are placed. I have already detailed their most striking characters.

The second division comprehends true scirrhus, yet it must be confessed that it is often difficult to say whether this term is applicable or not, since the natural boundaries are most indistinctly marked

between this and some other members of the family.

The third division comprises fungus hæmatodes, fungus medullaris, medullary sarcoma, fungoid disease, spungoid inflammation, cerebriform cancer, &c.

The fourth division comprises melanosis, in that particular form which exhibits a structure resembling the preceding, to which the term melanosis, as descriptive of a particular specific affection, has been by some restricted.

Laennec has remarked, that the older surgeons, and, in imitation of them, the modern anatomists, have confounded, under the names of cancer, scirrhus, and carcinoma, accidental productions which have no common characters, except either their having no analogy to the structures naturally existing in the body, or in their being produced in a state of firmness or crudity, and tending to destruction by a process of softening. I am very far from wishing to set aside the discrimination between the different forms of malignant diseases. We owe much to my late valued preceptor, Laennec, for the distinction which he very powerfully contributed to introduce. At the same time, I am persuaded, that there are certain points of resemblance by which the affections, known by the different names which I have

enumerated, are most intimately, and, as a family, inseparably connected. These common points of resemblance, chiefly dependent on structure, and which appear to have been very much overlooked, not only by Laennec, but by many others, form the characters which I shall endeavour, in the first place, to point out. Having explained these, I shall proceed to notice what I conceive to be the structural and other peculiarities of each division.

The tumours of the description of which I am now speaking have a more or less rounded form. On making the section of them they present various appearances, but are all more or less divided by septa, which affect sometimes a radiated form, and at others a cellular character. Both of these characters have been insisted on by many writers on this subject; but I believe the differences which have been observed in many instances depended on the direction in which the sections were made.

The mode of examination by means of sections, if it be the only one employed, is not better adapted for the investigation of these tumours than for that of the brain. The objection to it is increased by the plan of immersing the specimen in alcohol, which is sometimes had recourse to for the purpose of hardening the parts. By this measure the fluids are coagulated, and the trans-

parent parts rendered opaque: we consequently destroy two of the most important characters which assist the examination, by marking the boundaries of structure and arrangement. It is on this account that almost all the preparations which I have made myself, or seen made by others, are more or less unsatisfactory, and, even in the most successful cases, fall incomparably short of the inspection of the recent specimen. If we carefully dissect down to the surface of one of these tumours, we shall usually find that it has a capsule or covering, which has, I believe, generally been supposed to consist of the altered and condensed cellular membrane of the parts which have given way before the growth of the tumour. This idea is probably correct with respect to the unequally thick external part of the capsule; but if we dissect carefully, and examine those tumours in which the process of decay has either not commenced, or has made very little progress, we shall find that surface which is next to the mass of the tumour more or less smooth and even, and on raising it we find that it is reflected over one or more somewhat pyriform bodies, attached by a base, which is generally narrow and peduncular to some part of the circumference of the inclosing capsule. Unless the tumour is very small, it is much more common to find several rather than a single body of this kind, and as there is often little, if any, fluid intervening between them and the enclosing capsule, their form is somewhat modified

by their mutual pressure. Sometimes, though more or less closely applied to each other, these pedunculated bodies are perfectly detached at their sides, and may, consequently, be readily traced to the point which forms the common origin of their peduncles. At other times, these bodies are so adherent amongst themselves, and the membrane covering them is so tender and delicate, that without very great care the arrangement of their structure may be overlooked, in consequence of the pedunculated bodies being broken or torn through in a different direction from that to which their mode of formation would naturally dispose them.

It must be sufficiently obvious that the appearance presented by the section of a tumour, such as I have just described, must be very materially affected by the direction in which the section is made. If it pass through or near to the point at which the pyriform bodies are attached to the enclosing cyst, it must nearly correspond with the direction which some of these bodies take towards the circumference, and their edges will consequently be seen in the form of radiating lines. On the other hand, if the section be made more or less nearly transversely to the axes of these bodies, their sections will convey the idea of cells of various shapes. If we continue dissecting and raising the outer cyst, forming the reflected membrane which covers the radiating pedunculated bodies,

we shall generally find, that on one or more sides it dips down deeply into the mass of the tumour, and forms a part of the septum which separates the one packet of pedunculated bodies from the others which generally concur to form the mass of the tumour; for it comparatively rarely happens that the tumour is composed of a single cyst filled with pedunculated bodies. On examining the different encysted packets of pedunculated bodies which compose the tumour, we shall often find some indication of their having taken their origin from nearly the same spot, which is generally the most indurated part of the tumour. We may likewise observe, that the different secondary tumours or encysted bundles of pedunculated bodies are in very different stages of progress.

In those in which the internal growth is the most active, we shall find that a process has taken place perfectly similar to that which I described as occurring in ovarian tumours, when the development of the contained cysts produces the hernia or rupture of the containing one. The secondary cyst or cysts, which make their way through the containing one, rapidly advance when they are freed from the restraint which its pressure afforded, and thus constitute another tumour, which adds to the original mass.

If we examine the structure of this new tumour, we shall find that the subordinate growths of which

it is composed, radiate from the point at which this tumour made its escape from the original one. At the same time that the escaped cyst or cysts acquire their more rapid growth, they often acquire a new character with respect to their consistence, which is generally much more soft and tender. The most striking illustrations of this principle are met with in osteo-sarcomatous tumours, which very decidedly belong to the class of which I am speaking. Whilst that portion which constitutes the original part of the tumour, and has been formed beneath the pressure of the periosteum, is dense, and more or less loaded with bony matter, that portion which has grown through the openings presented by the distended fibrous tissue is of luxuriant and rapid growth, and is almost wholly composed of soft matter.

Those parts of the tumours in which the rapid and unrestrained growth is most remarkable, are generally situated near the circumference, where they are at once both exempt from the restraint of mutual pressure, and receive more abundant supply of nourishment from the surrounding natural structures. A marked difference exists between those just described, and others in which development has been restrained or vitally lost by pressure and consequent defective supply of nutrient matter.

I have already explained the mode in which these effects are brought about in those ovarian

tumours in which the secondary cysts are thickly crowded and attached by very narrow peduncles. Precisely the same process takes place in the tumours of which I am now speaking; and when we make a section through one of them, which happens to be composed of many secondary tumours, and which consequently presents many centres of radiation, we shall often find that the pedunculated bodies connected with one or more of these centres have lost their vitality by a natural strangulation or ligature, and also that the immediately adjoining parts which yet retain their vitality, irritated by that which has now acquired the character of a foreign body, are brought into a state of inflammation. The result of this compound action is the formation of a cavity filled with broken down and softened matter of a peculiar character, intermediate between suppuration and gangrene. This process very frequently takes place before the exterior of the tumour exhibits any symptom of irritation or inflammation, and, to my mind, very satisfactorily accounts for that disposition to central softening or decay, on which Laennec, Wardrop, and some others, have so forcibly insisted as characterising the progress of heterologue deposits. At the same time, I think I am correct in stating, that for the production of this form of gangrene or softening, the supply of nourishment should be pretty promptly cut off by the operation of the natural ligature. When the process proceeds more

slowly, the parts which are under its influence gradually acquire an increasingly dense structure, and ultimately becoming penetrated by earthy matter are allowed to remain unproductive of serious irritation, notwithstanding their deteriorated organization, and diminished supply of nourishment. Striking examples of this process are met with in the scirrhous tubercles developed in the uterus, and I have likewise seen it in the liver.

Tumours, such as I have described, in the course of their development produce, by the irritation which they excite, a greater or less degree of thickening of the surrounding cellular structure, and sooner or later become visible externally, dilating the integuments which are stretched over them. The points at which this distension is the most considerable are inflamed, the inflammation proceeds to ulceration, and the tumour either sprouts luxuriantly at the part from which the pressure is thus removed, or participates in the ulcerative process; which latter event, for reasons which I shall presently explain, is that which we have most frequent occasion to observe.

The ulcer, the production of which I have described, is worthy of special attention, and has been particularly insisted upon as peculiarly characteristic of malignant disease. It is universally described as presenting elevated and everted edges,

whilst its ragged and depressed central portion is bathed by an unhealthy secretion, to which the name of pus can scarcely be applied.

The mechanism by which this peculiar ulcer is produced, is well worthy of attention. I have shewn, that at the external part of the tumour its growth is the most luxuriant, both from the want of pressure, and from the increased supply of nourishment: this will explain why the circumference of the tumour is the most elevated. The central parts, on the other hand, have not only to encounter the pressure which they sustain from the surrounding parts of the tumour, and to suffer the diminished supply of nourishment which this pressure occasions, but, moreover, ulceration having removed the integuments, all supply of nourishment from the surrounding natural structures is necessarily cut off. The depth and irregularity of the central part of the ulcer is often further promoted, by a communication being formed between this part of the ulcer and a cavity commenced and produced in the interior of the tumour by the process which I heretofore described. We may be easily convinced of the general accuracy of the description which I have endeavoured to render intelligible, by making a section through a recent specimen of an ulcerated tumour of the kind I am now describing, in such a manner that the incision may pass through the diameter of the ulcer; by then carefully dissecting the cut edge of the ulcer,

we may almost always find satisfactory evidence, that the elevated margin is composed of radiating pedunculated bodies,—whilst in the centre this disposition is less distinct, much more condensed, and exhibits little, if any, trace of organization, excepting in a few spots, in which inflammation appears to have been set up by the irritation caused by the neighbouring dead parts.

There yet remain a few remarks for me to offer respecting these tumours generally, before I proceed to speak of their different species.

1st. With respect to the more fluid parts of the tumours. Although these generally bear a very small proportion to the solid part, we shall almost always find a fluid in a greater or a smaller quantity, which, on close inspection, is seen to be either contained in cells of various sizes, or lodged between the pedunculated bodies and the membrane reflected over them. This fluid is by no means uniform in its appearance and qualities. In that form of tumour which I have taken as the type, in which the encysted structure is the most evident, in which the surrounding parts are the least altered, and in which there appears to be no constitutional taint, the fluid is most abundant, and more frequently than in the other forms, presents a serous character; but, even in this form we find it passing through the various degrees of ropiness, in some of which it very closely resembles synovia,

until we arrive at the form of thick and perfect mucus. In some cases it is also met with of a yellow colour, as if tinged with bile, and at other times streaked or spotted with blood. It is sometimes more intimately mixed with blood or cruor. Most of these appearances may be met with before the contained cysts or pedunculated bodies have lost their vitality, yet the last mentioned appearance, or that in which the fluid is soiled by cruor, is most likely to occur when this change has taken place. At other times the fluid contained in those cells in which the inferior cysts or filaments have lost their vitality is yellow, opaque, and puriform, or grumous. In those tumours which present a very dense structure, bearing a considerable resemblance to cartilage, the fluid which may be observed to exude from those parts of the incised surface at which the vitality of the structure has not been lost before the removal of the tumour or the death of the subject, is, I believe, invariably of a viscid, mucous character. I would wish this observation to be kept in mind, as I shall hereafter have occasion to advert to it. In the present instance it deserves notice as forming one of the features of resemblance, between the tumours with which I am now occupied, and those more manifest serous cysts with the description of which I commenced. In these dense tumours, we may often observe small scattered yellow opaque points, presenting the same character as those already

described as occurring on a larger scale where vitality has been lost by strangulation.

2nd. The differences observable in the solid part of these tumours merit particular attention, since it is on them that the distinctions drawn by pathologists have been principally founded; we find it presenting every gradation, from an almost stony hardness to the consistence of the brain of a child, or of weak glue. It is not, however, in the degree of consistency that the only difference exists. There are likewise differences of structure, which appear to depend partly on the mode in which the contents of the cyst have been thrown out, and partly on the susceptibility of organization possessed by the matter effused. In those cases, in which the structure on which I have insisted is the most evident, the most subordinate pedunculated bodies are well defined, and each inclosed in a peculiar membrane. Although these membranes may be adherent amongst themselves, collectively they entirely fill the sac which is reflected over them; they are seen to take their origin from one particular part, and their small thickened and feebly organized membranes principally constitute the solid part of the tumour. At other times, instead of a bunch of numerous small cysts or pedunculated bodies, the enclosing cyst or reflected membrane, as I have already said, contains only very few bodies, or even a single

body of this kind, which, if examined at an early period of its formation, will be seen to bear a close resemblance to some forms of polypi, and to be nearly or quite transparent, but of an amber or sanguineous colour. It appears to consist of tender coagulable lymph, which at times admits of the elongation of vessels into its substance. These vessels ramify in a radiating form from the point to which the peduncle is attached; they seem however to be incompetent to maintain the vitality of the structure in which they are distributed. This structure, as its degree of vitality is lowered, becomes opaque; it is white and resembles the medullary structure of the brain, if the small vessels of which I have been speaking do not give way; but when they do give way, the blood which they effuse pervades the opaque matter, and more or less deeply discolours it. I have never met with the last described appearances except in tumours of rapid growth, dependent on fungus hæmatodes or medullaris. I am induced to lay some stress upon them, since they appear to me to explain why we are sometimes able to inject large masses of fungoid matter, and why, whilst they yet retain some degree of translucence, we may without injection detect a few vessels passing through the substance. I think, moreover, that they tend to reconcile the conflicting opinions which have been advanced respecting the organizibility of fungoid matter.

Sometimes the more or less solid matter appears to consist of a secretion from the internal surface of the membrane generally, rather than of a growth protruded into its cavity from a particular part of its circumference. In this form we occasionally meet with a laminated structure, such as is observed in an aneurismal clot; I am not aware that it ever exhibits the slightest indication of organization, though it not unfrequently becomes infiltrated with extravasated blood. This form, like the preceding, is principally, if not solely, met with in fungoid disease. Some tumours, which are of an almost gristly hardness, and acquire a considerable size before they pass into the stage of softening or ulceration, appear to be formed on the type of those ovarian tumours, which are composed of cysts with broad bases; in these the radiating structure is but little observable. I have seen, in examining cysts, in which the structure which I have now repeatedly endeavoured to explain was unequivocally present, some appearances which are worthy of observation, and which I cannot better introduce than in this place, though it is not easy to say whether they belong more to the fluid or to the solid part of the structure. The cysts of which I am speaking contained a substance, which may perhaps be best described by comparing it to the crystalline lens when it has been in some degree softened by decomposition, though rather less uniform than it, both

in consistence and appearance. That part which was the nearest to the containing cyst, was the least firm and consistent, but the most transparent. It was too transparent and colourless to conceal the firmer interior part, which was rendered distinguishable by a slight degree of opacity, and appeared to consist of a cluster of small pyriform grains, but nothing like a membrane could be distinguished inclosing them individually and separating them from the transparent matter in which they were placed. This observation appears to possess a twofold interest. In the first place it will enable us to conceive how easily the traces of original structure may be lost when we find them impressed on a material so tender, and which is in contact with another material in composition almost identical with it. Secondly, we may draw from it a strong presumption, that the cysts of which we have been speaking in the various forms in which they present themselves are altogether new formations, and not the result of the extension or development of pre-existing structures, and which, therefore, tends to confirm the opinion which I have already advocated, that they are neither the dilated terminations of the extreme branches of any of the three vascular systems, nor modifications of the cells of the cellular membrane. I shall not trespass on the time of the Society by entering into the speculation which I have entertained as to the mode of their formation.

Such are the principal points of variety which I have thought it necessary to point out in reference both to the fluid and solid matter constituting that part of the tumour which consists essentially of a new and adventitious structure, and not of the degeneration of structures natural to the body.

I have next to notice the changes which these structures undergo in the immediate vicinity of that which is adventitious. In the immediate vicinity of those tumours which consist of well formed adventitious serous cysts of the second class, such as those which have been described as hydatid disease of the testicle or mamma, and in conjunction with which there appears to exist no constitutional taint, we find some thickening and condensation of the surrounding cellular membrane; but even this is seldom very considerable, and the muscular and other structures appear to undergo no other alteration than that which may be referred to pressure or distension. The case is different with respect to other tumours of this class, in which the essential form of an adventitious serous membrane of the second kind is complicated with the effusion or secretion of a material, which, though possessed of certain points of resemblance, appears to differ from any thing that is produced by the natural structures of the body in their healthy state. It seems pretty evident, that in the disturbed, if not in the healthy,

process of nutrition, the new product in one part is influenced by the nature of the surrounding parts. As this is an important point, which I wish not to be taken barely on my word, or solely on the authority of cases relating immediately to the subject before us, I will endeavour to illustrate it by one or two independent examples. The first instance that occurs to me is in the case of masses of bony matter deposited in the condensed cellular structure, resulting from a chronic ulcer situated over bone. In one example which I have particularly in view, the ulcer occupied the neighbourhood of the trochanter major, and the masses were formed in the immediate vicinity of the bone, but were, nevertheless, perfectly detached from it. The numerous instances which we see of ossification at the origins or insertions of muscles are probably referrible to the same principle, although it must be admitted that these examples are not unexceptionable, since in them we have a continuity of structure. I need scarcely call to mind the fact, that inflammation of a serous membrane tending to the production of an inorganizable deposit on its smooth surface, is frequently accompanied by a similar production on its attached surface. How often after the fracture of a bone is the process by which the new bony matter necessary for its union is produced, morbidly carried on in the matter which inflammation has deposited in the surrounding structures.

I shall not at present adduce any further illustration of this principle, before I proceed to mention those cases which more immediately belong to the subject before us. They are, in fact, the most striking that can be brought forward, probably from the circumstance, that the heterologue structures are much more readily produced accidentally than the analogue. Although I have adverted to this principle as one of much interest and importance, and well worthy of investigation, I wish it at the same time to be expressly understood, that I very fully admit the operation of many other causes which appear to perform at least as important a part in modifying the function of nutrition, and consequently in determining the nature of its product. It is, however, as I apprehend, mainly on this principle, that we are to explain the fact that the natural structures in the neighbourhood of those tumours of the class of which I am speaking, to which the epithet of malignant has been applied, are so apt to degenerate into a substance in some respects resembling that of the original tumour. Thus, in the neighbourhood of those tumours which are of slow growth, and of cartilaginous hardness, we often find the surrounding structures, but more especially the cellular membrane, partaking of the same character of hardness, though necessarily wanting that structural arrangement which characterizes the essential part of the tumour. In the same way we find that those tumours, in which the

arrangement that I have described has been given to a soft and almost brain-like substance, are surrounded by natural structures which degeneration has converted into nearly a similar substance, or which have a similar matter deposited interstitially. Again, in those tumours which are remarkable for their black colour, and compose that division of tumours to which the name of melanosis has from this circumstance been applied, the surrounding structures become more or less deeply tinged with a black or carbonaceous material. This disease also presents us with a good illustration of the principle, but in a mode precisely the converse of the preceding examples. There is, perhaps, no organ so liable to be affected with melanosis as the eye, and I cannot help strongly suspecting that it is the natural and healthy production of black pigment performed by the choroid coat of this organ, which is the chief cause of this predisposition. It appears, that these changes in the natural structures surrounding the tumours in question, do not take place until some cause, connected with the presence of the tumour, has produced in them either absolute inflammation, or a degree of irritation almost amounting to it. It is on the nature of the ingorgement or effusion to which this irritation gives rise, that the nature of the alteration in the natural structures depends.

On reverting to the different causes of variety, which I have now enumerated as affecting the ge-

neral arrangement of the structure of the tumour, the character and proportion of its fluid, and also of its solid parts, and likewise the structures surrounding the essential part of the tumour, and often occasioning their being confounded with it, it will at once be seen that there is abundant reason, both for the want of uniformity in the very great number of tumours which may notwithstanding be referred to one and the same type, and for the very great variety in the opinions entertained by pathologists respecting the appearances, structures, and natures of these tumours. There are, however, still, other causes which contribute to add to the variety and obscurity to which I have alluded; amongst the most fruitful of these are the differences in the original structure in which the new growth has taken its origin: thus, when the new growth is so situated as to be intimately involved in the muscular fibres, the combined effect of their pressure and motion has a strong tendency to obscure the peculiar and essential structure of the new growth. But, although its form is thus altered, and its structure in some instances approaches the character of elastic ligaments, I have never yet failed to detect in some part or other of the new growth, indications sufficiently conclusive to convince me, that even in them the type which I have explained is still observed. With this remark, I shall conclude my general observations on the structure of this class of tumours; but before I proceed to the special

description of its several divisions, I shall take notice of other characters which are common to some of them.

Since nearly all of them have been termed malignant, and as the question of malignity is almost constantly agitated with reference to individual tumours, it becomes a matter of considerable importance to define exactly what is meant by this term, and not less so if it be possible to ascertain with certainty the sign by which a tumour may be known to possess this quality. On this point, however, I do not flatter myself that I shall be able to speak very satisfactorily. There seems indeed to be a generally received and conventional meaning attached to the term malignant, but it is so vague, that I have not been able to obtain from books, or from those individuals who are the most conversant with this subject, such a definition of the term as would bear the test of critical examination. Still less have I been able to compose a satisfactory definition for myself. The best substitute that I can offer in the absence of the desired definition, is an enumeration of those characters, the whole or greater number of which concur in cases to which the appellation of malignant has by common consent been applied. The first of these is the alteration which I have already described as taking place in the structures in the immediate neighbourhood of the spot primarily affected. The second, the peculiar figure and appearance of

the ulcer to which the malignant tumour ultimately gives rise. This ulcer, as well as the mechanism of its production, I have already particularly described. Thirdly, as a consequence either of the external ulceration, or internal death and softening of the tumour, the absorbent glands situated in the course of the lymphatics leading from the part, become enlarged, by a deposit having very much the character possessed by the original tumour. Fourthly, besides the affection of the glands situated in the course of the circulation, and at times without this having sensibly taken place, other parts of the body become the seats of similar deposits. Sometimes deposits of this kind have taken place in very many structures and parts of the body simultaneously. At other times they are confined to very few organs or even to a single organ; in which case the organ or organs in which such deposit takes place, appear to be very much influenced by the seat of the primary affection. Some of the instances of this kind afford curious proofs of the inexplicable sympathy existing between remote organs; thus, in a case of fungoid disease affecting an absorbent gland in the neighbourhood of the parotid, glands of a similar description, situated near the upper edge of the pancreas, were found enlarged and participating in the disease. Scirrhous tubercles in the uterus are in the same way found in conjunction with scirrhous mamma. The liver of all organs is perhaps the most liable to become the seat of these secondary depositions

of malignant tumours or tubercles. We find them in this situation when the primary formation has taken place in the eye, the breast, the stomach, the rectum, the mesentery, the kidney, the testicle, and perhaps in many other situations. Fifthly. Whilst these affections have taken place in different parts of the body, and in some instances, even whilst the structural derangement continues limited to the immediate neighbourhood of the spot first affected, the system generally becomes more or less seriously deranged, the complexion loses its natural and healthy clearness, and presents a diffused sallow or leaden hue, or in some instances a dingy redness; the countenance is expressive of sadness or anxiety, and is so peculiar, as in most cases to be easily recognized by the practised eye, though it is difficult to convey a description of it in words. The patient, worn by a lingering hectic, which is generally accompanied by distressing watchfulness, becomes in most cases, though not invariably, extremely emaciated. To the production of this effect, loss of appetite, distressing nausea, and occasional vomiting, together with colliquative sweats, the ill-conditioned discharge and occasional hemorrhage from the sore, and local and general pain, mainly contribute. It is, however, sufficiently notorious that many of the characters which I have just enumerated, are often absent, notwithstanding the existence of a tumour, or even of an ulcer, respecting the malig-

nant nature of which, few competent judges would hesitate to pronounce. Again, some of these characters belong to affections which are not regarded as malignant, as well as to those which are so. First. With respect to the alteration in the surrounding structures. This may accompany other tumours besides those which are considered as malignant, and the peculiar nature of the change which they undergo in conjunction with those which are so regarded, is not to be positively ascertained by the mere application of the fingers to the tumour whilst covered by the integuments, nor always even when the parts are actually removed from the body. Secondly. The characteristic appearance of the ulcer is not at all times present, for the production of the new and external part of the tumour on which the elevation of the edge depends, is not constantly going forward; and during its suspension, the surrounding more or less healthy integument will sometimes put on an appearance which affords a temporary and fallacious promise of cicatrization. Again, ulcers possessing no degree of malignity in consequence of the size and arrangement of their granulations, sometimes present an imperfect resemblance to the malignant ulcer. Thirdly. The consecutive effect observable in the absorbent glands is far from being peculiar to malignant diseases, but attends them in common with scrofulous, venereal, and common inflammations. The nature of the changes which

these glands undergo, may indeed be peculiar in malignant diseases, but of their changes we can know but little at the time when the knowledge of them would be of the most importance. With respect to the fourth character which I have mentioned, or that of similar productions taking place in different organs after the one primarily affected, it is one which, though it may be often suspected, can frequently not be ascertained until after death. Moreover the same tendency not unfrequently accompanies the production of the scrofulous tubercles which we find invading various organs in the same subject. And, again, it does sometimes happen, that the most undoubted cases of malignant disease, both with respect to the local affection and the characteristic derangement of the general system which accompanies it, and ultimately brings the patient to his grave, may present no trace of the disease, except in the part first affected and in its immediate neighbourhood, but not even in the absorbent glands belonging to it. A striking instance of this kind occurred in a patient of my friend J. Morgan. This man came into the hospital affected with fungoid disease of the testicle. The testicle was removed. The disease reappeared in the cut extremity of the cord; a second operation was performed, which, like the first, was followed by the renewed growth of the morbid structure. No further operation could be performed. A large bleeding fungoid ulcer occupied the greater part of the groin, and the patient died with all the con-

stitutional symptoms which belong to the last stage of this formidable complaint. On examining the body after death, I found that the new growth which presented the ulcerated surface which I have mentioned, afforded a very complete specimen of the medullary or brain-like matter. I was much surprised in pursuing the examination, not to discover any trace of the disease in the absorbent glands, or in any other part of the body. Those general and constitutional symptoms which I enumerated in the fifth place, are like the others, which I have mentioned, by no means infallible. Sometimes the patient, though affected with a tumour, respecting the malignant nature of which there can be no doubt, for a long time bears up against its fatal influence: and sometimes, patients whose health is seriously impaired by chronic visceral derangements, present, in the complexion and expression of their countenances, appearances which induce strong suspicions of malignant disease.

Besides the indications of malignity of which I have been speaking, others, which may, perhaps, be regarded as of still less value, have also been pointed out. Amongst these may be mentioned the obstinacy with which the ulcer resists all the efforts which are made to promote its healing; but this is a character by no means peculiar to malignant ulcers. Another character is the enlargement of the veins in the neighbourhood of the affected part; this symptom, however, is not at all times present as an accompaniment to malignant

formation, and may be present where malignity does not exist. More stress has been laid on the peculiar darting or lancinating pain which is felt in and about the diseased part; but this symptom, though strongly characteristic of some forms of malignant tumours, does not accompany all of them, and pains presenting very nearly the same character at times accompany affections of a different nature. Hence arises the difficulty, not merely of composing a concise verbal definition of the term malignant, as applied to the tumours in question, but also in many cases of drawing the line in actual practice. For my own part, I should, in examining a tumour in the living subject, be in general disposed to suspect what has been called malignity, whenever I could detect indications of the structure which I described accompanied with alteration of the surrounding structures, and in its origin referrible to some external violence, or to a pre-existing indolent tumour. These suspicions would be proportionably stronger if the tumour in question occurred in a part known to be rarely, if ever, affected with that non-malignant and well defined form of tumour which, in common with those of a malignant character, distinctly possess the structure alluded to; my suspicions would be progressively converted into absolute certainty in proportion as the other symptoms, previously detailed, unite themselves to those which I have assumed as presenting themselves in the suspected tumour. But suppose

the tumour to have been removed from the body, and that a question as to its malignity has been started. In the first place, I should consider some traces, however slight, of the structure which I have described existing in some part of the morbid growth, as a *sine qua non* to the character of malignity; hence the importance of having the whole, or a very considerable part of the tumour submitted to our examination, and, if possible, that part which constituted the original formation should be contained in the portion selected for examination. This point being ascertained, we may, I believe, pronounce on the malignity of the new formation with a confidence proportioned to the degree to which the new growth deviates from the natural structures of the body, but more especially from the serous membranes. The spontaneous death of some internal part of the tumour, in consequence of the strangulation of some of the pedunculated bodies which compose it, is not alone a proof of malignity, but I have little doubt, that the influence which this change exerts, strongly contributes to induce a malignant character in the tumour. The degree of integrity or degeneration of the surrounding natural structures will also materially contribute to decide the question. When we have the opportunity of examining, not only the tumour, but the entire body, the presence of similar tumours in other parts of the system may warrant us in giving an unqualified affirmative, but their absence by no means proves the nega-

tive. I must now be allowed to say a few words respecting the constitutional taint, or specific diathesis, which is by many supposed to accompany the production of malignant formations.

It is manifest, that the common exciting causes to which the origin and formation of malignant tumours are wont to be ascribed, are continually operating on hundreds of individuals, on whom no serious effects are produced. Hence, it has been supposed, that a certain pre-existing condition of the system is an essential element to the production of the disease, although these same individuals may have enjoyed perfect health up to the time at which the exciting cause was applied. On the other hand, facts, at least equally strong, tend to favour the idea, that it is from the local affection that the constitutional taint is derived, since, in proportion to the indolence or activity of the primary affection, may in general be observed the invasion of other parts of the system. The affection of the glands, in the course of the absorbents, leading from the diseased part, might also be adduced as an argument in favour of the contamination of the system, through the agency of absorption; but on the other hand, we have unequivocal proof of this effect having taken place when the part primarily affected has been completely removed before the absorbent glands had been affected.

Having now completed the general remarks

which I think it necessary to offer respecting the mode of formation, anatomical structure, composition, and habits, common to the greater number of the heterologue adventitious deposits that are met with in the human body, I will proceed to speak of the different species of these structures, but especially of those to which the term malignant has been applied.

Formerly, as I have already stated in a remark borrowed from Laennec, all the forms and varieties of these productions were vaguely comprehended under the term cancer or carcinoma. Although, as I have endeavoured to shew that these formations by their structure, mode of development, and for the most part, by their influence on the system, are, with propriety, to be referred to one common type and grouped into one family, yet, as we shall presently see, there are certain peculiarities which will justify me in forming at least three specific divisions. Their limits, it is true, are so ill defined, and they pass so gradually into each other, that it is often difficult to decide to which of the species a particular specimen should be referred. In the best marked cases there is no difficulty of this kind. The distinctions of which I am speaking were, I believe, first pointed out and insisted on by Laennec and Bayle in France. It happened, very nearly at the same time, and without any intercourse between the two countries, that Burns, Hey, and Aber-

nethy, were engaged in the investigation of the same subject in this country. Their labours have been followed up amongst our countrymen by Wardrop, Langstaff, Cullen, and Carswell; and in France by Cayol, Breschet, Creuvellhier, and Ferrus.

I commence by speaking of that form of tumour to which the name of scirrhus or true scirrhus has been more particularly applied. As the term implies, tumours of this denomination are characterised by their hardness, which in many instances is at least equal to that of cartilage, but they want the uniform texture of this natural tissue, and in this respect bear a nearer resemblance to fibro-cartilages; hence, when divided by incision, they give rise to some noise, and are said "to cry under the scalpel." It is not only in density of structure but also in colour, that the scirrhous tumour exhibits a want of uniformity. These variations may be satisfactorily referred to the mode of formation which I have been pointing out.

The hardness of these tumours appears to be intimately connected with the slowness of their growth, and the comparative indistinctness of the structure, to which I have alluded, is another effect proceeding from the same cause.

True scirrhous tumours appear sometimes to depend on a single primary tumour; at other times,

several may be satisfactorily made out. That part of the tumour which appears to have been the common origin of the primary cysts, where there are more than one, or from which the contained pedunculated bodies radiate when there is only a single primary tumour, is in general the most indurated portion, and is, at the same time, the most indistinct in its structure. When examined externally, after the surrounding natural structures have been carefully dissected off, this part of the tumour is found to be the most irregular, has a somewhat corrugated appearance, and suggests the idea of its having been the sort of root by which the adventitious growth was implanted on the natural structures. The radiated appearance so strongly insisted on by most authors who have described scirrhous tumours, and the rationale of which I trust I have shewn, is particularly conspicuous when the section passes through this point. The fluid part of a true scirrhous tumour bears in general a very small proportion to the rest of the structure, it has a viscid or mucous character, more especially where softening has not taken place; but where this process is going on, it assumes the character of an offensive ichorous discharge, and acrid and highly deleterious qualities have by some been ascribed to it.

The process of softening sometimes commences internally at one point, at other times in several

small isolated points; in others, again, the ulceration through the integuments is the first part of the process of decay.

True scirrhous tumours, notwithstanding the length of time during which they continue to grow, very rarely acquire a considerable size. Indeed, it not unfrequently happens, that the wasting of the neighbouring structures, and more especially of the female mamma, which is by far the most frequent seat of true scirrhus, more than compensates for any increase of volume dependent on the new formation. Charles Bell has particularly pointed out this source of fallacy, which has induced some persons to assert, that scirrhus was not always productive of tumour.

True scirrhus appears to be a form of malignant disease essentially peculiar to the more advanced periods of life. It would seem, indeed, that the more resisting nature of the different tissues, and the more tardy and feeble operation of the function of nutrition, which characterise the decline of life, are the principal causes that render scirrhus a malignant disease of old age. The chronic characters, which belong to scirrhus, are not confined to the essential part of the tumour itself, the surrounding structures participate in it. By repeated attacks of inflammation of this description, the neighbouring cellular structure becomes thickened and indurated. It is on this altered structure,

implicating the nervous fibrillæ of the part, that, as I apprehend, principally depends the peculiar and characteristic lancinating pain which accompanies the accessions of inflammation, to which an organ affected with scirrhus is continually liable. This indurated cellular membrane has often been observed extending from the external part of the tumour, amongst the adipose structure, in which the mammary gland is situated. Like inflamed and thickened cellular membrane, resulting from other causes, this structure becomes gradually contracted, and most materially contributes to the puckering and distortion of the affected part. In the mammary gland, in which this puckering has been chiefly noticed, the traction exercised by the lactiferous tubes is the cause generally assigned. I do not deny that they may have some share in producing this effect, both by their own obliteration and contraction, and also as the medium by which the gland, altered and displaced by the tumour, acts upon the nipple; but I feel pretty confident, that the cause which I first assigned is the principal one. These same prolongations of indurated cellular membrane, proceeding from the tumour into the surrounding adipose substance, appear to have been considered as prolongations of the radiating lines, observable within the essential part of the tumour, and to have been regarded as a part of the scirrhous structure itself; in fact, as fibres of the disease on which its re-appearance, after an operation, mainly depends. For my own

part, I very much doubt whether this altered cellular membrane itself really possesses any thing of the malignant nature, although I can easily conceive, that the tumour by which the disease makes its renewed appearance, may have taken its origin in the course of one of these indurated prolongations left in the surrounding structures. I believe this circumstance is to be explained in the following manner:—In dissecting away the fat from the principal part of a scirrhous tumour, I have had occasion to notice these prolongations of cellular membrane, and in doing so I have observed very small and delicate pedunculated cysts, some of which scarcely exceeded the size of a pin's head, dispersed upon the aforementioned cellular membrane. It is to the development of one or more of such cysts, rather than to the altered cellular membrane itself, that the new tumour is to be attributed.

True scirrhous tumours, in many instances, remain for a length of time in an indolent state, without passing into a state of softening or producing an external ulceration. Before this ulceration takes place the tumour becomes adherent to the skin, and though there is generally but little redness observable in these tumours, a spot, most frequently of small extent, becomes of a bright and cherry red or of a purple livid colour, before the continuity of the integuments is destroyed. It is needless that I should again describe the characters of a malignant ulcer, which are in general

very completely seen in the ulcerative stage of true scirrhus. It may, however, be said, that the ulceration of true scirrhus is attended with a more decided loss of substance than that of the next form of tumour of which I shall speak,—viz. cerebriform cancer, and which is often attended with large, rapid, and irregular growth from the ulcerated surface, whence the names of fungoid disease, fungus medullaris, &c., have in all probability been derived. The ulceration of true scirrhus is indeed bounded by its elevated wall of circumvallation; but the central parts, gradually hollowed away by the softening of the very imperfectly organized structure, present a foul and deep chasm.

It is to this state of the ulcerative stage of true scirrhus that the appellation of cancer, or carcinoma, in the most restricted sense, has been applied. Some pathologists have considered that both cancer and fungus result from the degeneration of scirrhus; that if acute inflammation attack the scirrhous structure, ulceration follows, presenting all the characters of cancer, but that if the structure undergoes a gradual degeneration and breaks down, a cerebriform mass is the result. I must avow my dissent from this doctrine, although promulgated by the learned authors of the Dictionnaire de Médecine, in an article which I believe to have come from the pen of Breschet. I see no reason to doubt that these two species of diseased structure depend on differences which

exist *ab initio*, and I cannot help being more particularly surprised that cancer should have been considered as a more acute form than the fungoid disease.

In a cancerous or carcinomatous ulcer it not unfrequently happens that one or more vessels give way and lead to a hæmorrhage, which in some instances is very profuse. Such hæmorrhages are, however, very different from those which form so characteristic a feature of fungus hæmatodes. In the case of cancer, of which I am now speaking, the greater part of the ulcerated surface, though irregular, is possessed of considerable, nay, almost cartilaginous firmness; the hæmorrhage in question takes place from particular points, and if we attempt to inject such an ulcer with fine injection, either after its removal from the body, or after the death of the subject, we obtain but very imperfect success, because the larger portion of the injection escapes from the open arteries. Such hæmorrhages are so far from being attended with an exuberant sprouting fungous growth, that at times they seem to be the principal means of procuring a temporary improvement in the appearance of the ulcer.

I believe that it has sometimes, though indeed very rarely, happened that tumours, possessing the characters of true scirrhus, and regarded as such, have become detached by the sloughing of

the surrounding structures; and being in this way completely thrown off from the system, the cavity which they occupied has been filled up by granulations, the surface cicatrised, and a permanent cure obtained. The occasionally successful practice of some empyrics consists, I believe, in attempting to induce this process artificially. Although the mamma, the uterus, and the lips, are the parts the most frequently attacked, few, if any, organs can be said to be wholly exempt from it. It is not, however, so prone to invade numerous organs in the same individual as the fungoid disease, of which I shall have next to speak.

Before quitting, for the present, the subject of scirrhus and cancer, there is one form of tumour, to which the term scirrhus is applied, which differs so considerably from some of those which I have been describing that I must not pass it over unnoticed. I allude to the scirrhous tubercles developed in the body of the uterus. They possess a well defined rounded figure, a close and compact tissue, in which the structure, referrible to the same type as the cysts, to which I have so often alluded, is tolerably distinct, on a much larger scale than that generally observable in true scirrhous tumours in other parts of the body. They rarely, if ever, present any cells or cavities. They acquire a much larger size than true scirrhous tumours in other parts of the system. They never, or at most very seldom, pass into the stage of

softening or ulceration, and when formed in the uterus, without any other organ having exhibited a tendency to the production of scirrhus, the formation almost always continues wholly confined to this organ. Consequently, they do not appear to be accompanied by any constitutional taint. On the other hand, their occasional formation, in conjunction with the primary scirrhous and cancerous affection of the mamma and other parts, necessarily connects them with the malignant disease of which I have been speaking. Although these tumours, or tubercles, are little liable to the process of softening, their formation disposes them, in common with other growths of the same family, to a diminution or loss of their vitality. It would seem, however, that this takes place very gradually, and is accompanied by deposition of bony or earthy matter, so that by the time the nutrient vessels are nearly, or quite, obliterated, the scirrhous is converted into a bony structure, little susceptible of change, and which may, consequently, be retained to an almost indefinite period in the system, without material injury to the organ in whose substance it is embedded. The peculiarities which I have just described as belonging to the scirrhous tubercles of the uterus are, doubtless, in great measure referrible to the part in which they are developed. In the first place, the uterus, as I have before remarked, is naturally disposed to accommodate itself to a stimulus, which excites to an increased supply of nourishment. It

is no less remarkably calculated passively to yield to the distension of bodies progressively increasing within it. Moreover, its structure is but little susceptible of morbid actions. Hence the new or adventitious growths have an abundant supply of the nutrient fluid. Their enlargement meets with no violent or partial obstruction, but, at the same time, is subjected to a steady, moderate, and uniform pressure, which tends materially to diminish the relative proportion of the fluid parts, and to which, in the instance before us, we may attribute the absence of cells, and the firm and compact structure of the tumours. Since the fibres of the uterus rarely contract, except during parturition, we need not be surprised to find that the scirrhous tumours developed amongst them are very far from being similarly modified to those which I mentioned as being formed amongst the ordinary muscular fibres, as, for instance, in the deltoid or the masseter. To the little susceptibility which the uterus exhibits with respect to morbid actions, we may, most probably, attribute both its own immunity from the scirrhous affection and the absence of constitutional taint.

The affection of which I have next to speak, notwithstanding that it must have been long familiar to the eyes of practical pathologists, has only recently been regarded and described as a particular disease. It has, however, already received several names, which, by some, are used almost

indifferently or as synonyms, whilst by others some of them are considered as denoting different varieties, if not species, of malignant disease. Thus we find the terms encephaloid tumours, cerebriform cancer, medullary sarcoma, spungoid inflammation, fungus hæmatodes, and fungoid disease.

I am rather inclined to prefer the last of these terms, namely, fungoid disease, not merely in imitation of my distinguished teacher, Sir Astley Cooper, but because, whilst it indicates that exuberant growth which almost invariably characterizes this class of tumours, it leaves undefined the particular character of the structures composing them, and consequently does not exclude any of the varieties comprehended in the division of which I am now to speak.

One of the most striking features which distinguish the fungoid disease from true scirrhus, is to be found in the extent and the rapidity of the development of fungoid tumours. Whilst, as has been seen, true scirrhus often remains for a considerable length of time in a chronic and indolent state, and after a growth of some years produces a tumour of only a moderate size, the fungoid tumour in the space of a few weeks is sometimes seen to attain to a prodigious size, and to pass through all the stages which belong to it in common with the other members of the same family of adventitious structures. Whilst true scirrhus is almost exclusively the disease of advanced life, the fun-

goid disease makes its appearance in individuals of every age; but its most formidable and extensive ravages are seen in the young. Whilst in true scirrhus the fluid matter forms a very inconsiderable and scarcely notable part of the structure, in the fungoid tumour it is frequently pretty abundant, presents a great variety in its characters, and is often collected in cavities of considerable size. In the scirrhous tumour, the peculiar mode of formation which I have pointed out must often be inferred by analogy, guided by faint and partial traces; but, in the fungoid disease, we meet with those unequivocal manifestations which almost speak for themselves. In true scirrhus the traces of vascularity are very faint; but in the fungoid disease the adventitious membranes possess a high and preternatural degree of vascularity. The vessels which we see ramifying in them, are not only numerous, but large. By some they have been considered principally arterial; by others venous: I will not attempt to decide to which class of vessels they are most nearly allied. They appear to consist of the capillary vessels of Bichat on a large scale; and as we sometimes meet with these membranes of a bright and arterial red, and at other times of a venous or livid hue, it seems probable, that accidental or fortuitous circumstances have the principal share in determining to which class of vessels these capillaries should most incline. These newly formed vessels, though large and numerous, are extremely weak and tender, and derive little or no support from the structure through which they

ramify, or by which they are surrounded; hence, they are liable to give way at numerous points, whence proceed those frequent and extensive hæmorrhages which so often characterize these tumours, and have led to the term of fungus hæmatodes, which has not inaptly been applied to many of them.

Sometimes the hæmorrhage from these vessels produces an effusion into the cavity of the membrane reflected over an inferior order of pedunculated cysts or bodies, and distends it into a cavity filled with blood, the characters of which will vary according to the time which has elapsed between its effusion and the making of the examination. At other times, the effused blood infiltrates the more solid parts of the tumour, and produces an appearance which by Laennec has been well compared to an apoplectic clot.

The more solid parts of the tumour differ in a marked manner from that which composes the scirrhous tumour. In this disease, the secondary cysts, which are often of large size, generally become filled with a material which at first bears a considerable resemblance to tender or feebly coagulated fibrine or plastic lymph. Into this substance new vessels speedily shoot; but being neither susceptible of perfect organization, nor calculated to remain inert and dormant, it speedily, but gradually, loses its vitality, and, like other transparent parts in

which such a change is effected, gradually becomes opake, and bears, in consistence and appearance, a close resemblance to the substance of the brain of a child: hence the terms, cerebriform cancer, encephaloid tumour, and medullary sarcoma. The idea of this resemblance has been carried so far by Professor Monnoir, of Geneva, that he has even considered that an adventitious production and deposit of cerebral matter actually takes place in this disease, and constitutes the bulk of the tumour. Such an idea I consider perfectly inadmissible. I am not aware, that even a single nervous fibrile has ever been discovered in the essential part of the fungoid growth. Although in fungoid disease the solid part of the tumour often bears a striking resemblance to cerebral substance, we frequently find it, on the one hand, deviating into a much more firm material, and, on the other hand, into one of a softer and grumous consistence. Sometimes it has a minutely foliated structure of a pearly white colour. When the diseased structure has completely lost its vitality, it breaks down into a variously discoloured pultaceous grumous mass, in which the remains of the membranes of the secondary cysts and their vessels may often be detected. Although in a recently formed tumour, or in the newer parts of an older one, the traces of that mode of formation on which I have insisted are sufficiently evident; they are very much lost or obscured as the process of decay advances. It is also at times difficult to distinguish

it when the tumour has only advanced to the stage of opacity, provided the substance of the tumour be very uniform, and the membranous parts not only very thin and tender, but adherent amongst themselves and to the contained substance.

The characters of fungoid disease are very much modified by the tissues in which the tumours are developed. Though I shall not attempt to particularize all these variations, I must not wholly pass over the peculiarities which this disease exhibits when it affects the bones. When the fungoid disease takes its origin in a part of the osseous system, bony matter continued from the natural structure forms a striking part of the new growth, through which it often radiates from that part of the bone in or near which the disease commenced. The bone thus formed is of a loose and feeble texture, compared to that of healthy bone. It would appear, that the deposit of bony matter only takes place in that part of the tumour which is subjected to the pressure of the periosteum, which is often greatly distended by the growth of the tumour. Its fibres become separated by this distension, the morbid growth advances through the opening and proceeds with increased rapidity, and soon loses all trace of bony deposit. It is not common for fungoid tumours to shew any disposition to ossification, except when originating from bone in the manner which I have just described; nevertheless, in some rare instances it is met with, but it pre-

sents very different characters from those which are at times observed to accompany true scirrhus. It is not, as in these last cases, the central and most compressed part of the tumour which forms the bed in which the earthy matter is deposited, but the cysts themselves, which become converted into bony shells, circumscribing their broken down contents. I have only noticed this phenomenon in some comparatively chronic cases of this disease. I apprehend it is very rare in this affection for the morbid growth to remain stationary for a sufficient length of time for the process of ossification to be carried on.

Having, I fear, already extended this paper to an unusual length, I suppress for the present some further remarks, which I had intended to bring forward. I shall probably submit them to the Society on a future occasion, and till then I refrain from speaking of the third form of malignant disease, viz. Melanosis.

OBSERVATIONS

ON

THE STATEMENT MADE BY

DR. DOUGLASS,

OF

CHESELDEN'S IMPROVED LATERAL OPERATION

OF

LITHOTOMY;

IN A LETTER TO

SIR ASTLEY COOPER, BART., F.R.S.

BY JOHN YELLOLY, M.D. F.R.S.

Read April 14th, 1829.

MY DEAR SIR,

HAVING had occasion, in a paper on calculous diseases and concretions, which the Royal Society has done me the honour to publish in the Philosophical Transactions, to advert to Cheselden's Improved Lateral Operation of Lithotomy, which I stated to be that which was followed by the surgeons of the Norfolk and Norwich Hospital, I was induced, from the accidental observation of a judicious medical friend, to entertain doubts, whether the representation made by me on this point was altogether correct. My opinion had been derived, from comparing the operation (which I had seen performed more than a hundred times since my residence here) with

the account given by Cheselden in the latest editions of his Anatomy; and with the description of its different stages, both as published in the Medico-Chirurgical Transactions by Mr. Martineau, the late senior surgeon, and as unreservedly communicated by the other operators.

I therefore found it difficult to conceive how an error could originate; and on looking into the subject, and, in particular, on carefully perusing our friend Dr. John Thomson's edition of Douglass's History of the Lateral Operation, (to which I had been referred,) I found no reason to alter my opinion. I was surprised, however, to discover, that Dr. Douglass had fallen into an important misapprehension, as to the most material part of Cheselden's operation; and as the circumstance is curious, and not at all likely to be again speedily investigated, I am averse to omit the opportunity which has thus been accidentally afforded me, of adjusting, though after a lapse of very nearly a century, an important point of professional history, and of placing on their proper ground, the high merits in lithotomy, of one of the brightest ornaments of English surgery. I have the pleasure of addressing these observations to you, because I have no doubt of the interest which you take in the subject; more particularly as it concerns an illustrious predecessor of yours, in the distinguished school of St. Thomas's.

The improved lateral operation of lithotomy was devised by Cheselden, after he gave up the high operation, in consequence, as it appears, of the hints afforded to him by the operations of Frere Jacques, and Rau; and he made two attempts at improvement, before he fixed upon the mode of operating which he permanently adopted. The first, he tells us, was by filling the bladder with water through a catheter, and then making an incision "on the outside of the catheter into the bladder, in the same place as on the gripe"; the second, by trying "to cut into the bladder, in the same manner that Mr. Rau was commonly reported to do."

Being disappointed in the expectations which he had formed of the success of both these plans of proceeding, he next "contrived" what may be regarded as his third and last operation, "the manner of cutting," (to use his own words) "which is now called the lateral way. This operation," says he, "I do in the following manner: I tie the patient as for the greater apparatus, but lay him upon a blanket several doubles, upon an horizontal table three feet high, with his head only raised. I first make as long an incision as I can, beginning near the place where the old operation ends, and cutting down between the musculus accelerator urinæ, and erector penis, and by the side of the intestinum rectum; I then feel for the staff, holding down the gut all the while with one or two fingers

of my left hand, *and cut upon it in that part of the urethra which lies beyond the corpora cavernosa urethræ, and in the prostate gland, cutting from below upwards, to avoid wounding the gut.*" A gorget was then passed along the groove of the staff into the bladder, and the forceps over it, in the usual way.—The number operated on by Cheselden, publicly, at St. Thomas's Hospital, according to this plan, amounted to 213, of which he lost 20.

This is the account of his improved operation which was given by Cheselden himself, in the 5th edition of his Anatomy, published in 1740*, two years after he had retired from St. Thomas's Hospital. It was reprinted in the same words, in the 6th edition published in 1750, which is the last that appeared in his life-time; and it has been copied, without alteration, into every one of the six or seven subsequent editions. There can be no doubt, therefore, of its being the mode of operation, and the description, which received his final and mature approbation. But that it is likewise the method which he very early and speedily adopted as his permanent improvement, is indicated by its agreeing, in the first place, in every important particular, with the first published account of it by M. Le Dran, in his Parallèles des Tailles, which appeared in the year 1730. According to this account, the operator cuts into the

* The Anatomy of the Human Body. P. 330.

groove of a curved staff, in the membranous part of the urethra, exactly on this side (" précisément en déça") the prostate gland, and then turning the edge of the instrument obliquely towards the fixed point of the erector muscle, (which is the tuberosity of the ischium,) passes it on in the groove to its extremity; and " as that extremity is in the bladder, all that is in the course of the groove, namely, the neck of the bladder, its orifice and the left prostate are divided by an oblique incision." The gorget and forceps follow *.

Le Dran offers this only as a rough sketch of the new operation, and expresses a hope that Cheselden would soon publish an account of his operation himself. This he speedily did; for in an appendix to the fourth edition of his Anatomy, printed in the same year, he gives the following description of his operation, which you will see is

* " Comme la main gauche de l'opérateur n'est pas occupée à tenir la sonde, le doigt index de cette main étant introduit dans la plaie reconnoit la crénnelure et sert à y conduire sûrement la pointe du Lithotome: cette pointe pour entrer dans la crénnelure doit percer la partie membraneuse de l'uréthre, précisément en déça des prostates. La pointe étant logée, son tranchant tourné, non vers l'angle inférieur de l'incision, mais obliquement du côté du point fixe du muscle erecteur, l'opérateur fait couler dans le crénnelure jusqu'à son extrémité la pointe du Lithotome; et comme cette extrémité est dans la vessie, tout ce qui est au passage, sçavoir le col de ce viscére, son orifice et la prostate du côté gauche se trouvent fendus par une incision oblique."—Le Dran, Parallèle des differentes Manières de Tirer la Pierre hors de la Vessie. P. 137.

very nearly in the same words as that which I have just given from the fifth edition:—"I tie the patient, as for the greater apparatus, but lay him upon a blanket several doubles upon an horizontal table, three foot high, with his head only raised. I first make as long an incision as I well can, beginning near the place where the old operation ends, and cutting down between the musculus accelerator urinæ, and erector penis, and by the side of the intestinum rectum. I then feel for the staff, *and cut upon it the length of the prostate gland, straight on to the bladder*, holding down the gut all the while with one or two fingers of my left hand. The rest of the operation is the same as in the old way. But in this way, there being often cut small vessels, I always tie them with a ligature passed under them by the help of a crooked needle."* I need hardly say, that this remainder consisted in the subsequent introduction of the gorget and forceps.

M. Morand, one of the most eminent French

* An Appendix to the fourth edition of the Anatomy of the Human Body, printed separately for the use of those who have the former editions; by W. Cheselden, &c. 1730. p. 8.

This tract is very scarce, and the only copy which I have seen of it, is one which belongs to the Medical Society of London, of which Dr. Babington was so good as to procure me the use. A friend, in the mean time, obligingly transcribed from a copy in the British Museum, the part which relates to Lithotomy; and his manuscript I have placed in the library of the Medical and Chirurgical Society.

surgeons of his day, was sent over from Paris by the French Government, on the recommendation of the Royal Academy of Sciences, in the month of May 1729, to be instructed in Cheselden's operation; and he describes it in the volume of the Academy's Memoirs for 1731, by translating, as nearly as possible, Cheselden's own account of it, which was published the year before, and which I have just given *.

When the accounts which I have thus brought forward of the nature of Cheselden's improved operation, are considered and compared, it would hardly appear, that there can be a question as to the important part of it consisting, in cutting upon the staff in the membranous part of the urethra, and in continuing the incision from such membranous part, through the prostate gland

* "Je lie le malade, comme au grand appareil, après l'avoir couché sur une table horizontale, de la hauteur de trois pieds, ayant la tête seulement élevée. Je fais d'abord une incision aux tégumens aussi longue qu'il est possible, en commençant près l'endroit où elle finit au grand appareil; je continue de couper de haut en bas entre les muscles accélérateur et érecteur gauche, et à côté de l'intestin rectum; je tâte ensuite pour trouver la sonde, et je coupe dessus, le long de la glande prostate, en continuant jusqu'à la vessie, et en assujettissant le rectum en bas pendant tout le temps de l'opération avec un ou deux doigts de la main gauche. Le reste de l'opération est comme dans l'ancienne methode, avec cette différence que je lie les vaisseaux coupés."—Recherches sur l'Operation de la Taille par l'appareil latéral, par M. Morand. Mémoires de l'Académie Royale des Sciences pour l'année 1731, p. 144.

into the bladder. Nor would any doubts, I should imagine, have been entertained on the subject, had it not been for an account of the operation, which was published by Dr. Douglass in the year 1731, in an appendix to his history of the lateral operation of Lithotomy, which appeared five years before. In this account Dr. Douglass states, that after making the external incision, Cheselden introduces "the forefinger of the left hand into the wound, and keeps it there till the internal incision is quite finished, first to direct the point of the knife into the groove of the staff, which he now feels with the end of his finger, and likewise to hold down the intestinum rectum, by the side of which his knife is to pass, and to prevent its being wounded. This inward incision is made with more caution and more leisure than the former.

"His knife first enters the groove of the rostrated, or strait part of his catheter, *through the sides of the bladder, immediately above the prostata,* and afterwards the point of it continuing to run in the same groove in a direction downwards and forwards, or towards himself, he divides that part of the sphincter of the bladder that lies upon that gland, and then he cuts the outside of one half of it obliquely, according to the direction and whole length of the urethra that runs within it, and finishes his internal incision, by dividing the muscular portion of the urethra on the convex part of his staff.

"When he first began to practise this method," continues Douglass, "Cheselden cut the very same parts the *contrary way;* that is, his knife entered first the muscular part of the urethra, which he divided laterally from the pendulous part of its bulb to the apex, or first point of the prostate gland, and from thence directed his knife upward and backward all the way into the bladder; as we may read in the Appendix he lately published to the fourth edition of his book of Anatomy. But some time after he observed, that in that manner of cutting, the bulb of the urethra lay too much in the way; the groove of the staff was not so easily found, and the intestinum rectum was in more danger of being wounded." *

The least consideration will shew, that the account of Cheselden's improved operation, which I have now quoted from Douglass, is perfectly irreconcileable with that which is given by Cheselden himself, in the Appendix to the fourth edition of his Anatomy; or by M. Morand, with his sanction and authority. But as Dr. Douglass's Appendix was published subsequently to Mr. Cheselden's Appendix, which gave his own account of the matter, it might be thought that he had, in the mean time, made a change in his plan of pro-

* An Appendix to the History of the Lateral Operation for the Stone, containing Mr. Cheselden's present method of performing it. P. 12.—Dr. Thomson's edition, p. 30.

cedure: and such Dr. Douglass intimates to have been the case. On examining the point, however, it does not appear that this can be the fact; for M. Morand made his communication to the Royal Academy of Sciences, on the 4th of April of the same year (1731,) that Dr. Douglass's Appendix was published, and little more than three months before the date of the latter, July 25*. It would hence have unquestionably happened, that Cheselden, who, it appears, was in frequent correspondence with M. Morand, would have communicated to him any change which he had made in his operation, subsequent to his visit to this country in the month of May 1729, and not have departed from the character of liberality and candour which he had so richly merited from M. Morand, and the French nation, by concealing what he had adopted as an important improvement. Any change of plan would have been quite in time for communication; for the volume of the Academy's Memoirs, in which Morand's paper appeared, though belonging to the year 1731, was not actually published till two years subsequently, as it bears the date of 1733. Still, however, Morand makes no allusion, in this communication, to any such change; nor does he do so in the Eloge on Cheselden, which he published in the Memoirs of the Royal Academy of Surgery, though this must have been written more than twenty years

* Morand's Recherches, p. 144.

afterwards, as Cheselden's death did not take place till the year 1752*. The second part of his Opuscules also, which contains some papers on Lithotomy, and was not published till the year 1772, is perfectly silent on the subject†.

But if Dr. Douglass's account of Cheselden's operation is a correct one, what shall be said of Cheselden's reiterating, in the edition of his Anatomy published in 1740, and again in that of 1750, an account, which is perfectly, or as nearly as possible identical with that of 1730? It seems to be perfectly clear, therefore, either that Dr. Douglass is inaccurate, or Cheselden disingenuous. If, however, the account given by Dr. Douglass, of Cheselden's supposed operation is attentively examined, there will hardly be a doubt, of an entire misapprehension having existed respecting it, on his part.

When Dr. Douglass describes Cheselden's improved operation to be that, in which the internal incision commences in the vesical side of the prostate, he states it to have been practised with great applause, and vast success; and that at the time he wrote (in July 1731), Cheselden had "saved fifty patients out of fifty-two, whom he cut

* Eloge de M. Cheselden; Mémoires de l'Académie Royale de Chirurgie. Tom. III. p. 82.

† Opuscules de Chirurgie, 2de Partie, p. 113.

successively in St. Thomas's Hospital."* An important document however exists, in the Appendix to Cheselden's fourth edition of his Anatomy, to which I have alluded, which shews such representation to be altogether erroneous. This document contains the names of all the patients, forty-six in number, who were operated on by Cheselden, at St. Thomas's Hospital, from the performance of his first improved operation on March 27, 1727, to that of the last which is mentioned in his appendix, of July 1730, with the date and result of each operation †. From this list we learn, that no fewer than thirty-six of these very patients, who are so represented by Douglass to have been operated on by the vesical plan, are incontestable examples of the success of the urethral mode of operating, which it is the object of Cheselden's appendix to describe.

Dr. Douglass, indeed, admits the urethral plan of operation to have been practised up to the time of the appearance of Cheselden's Appendix; which, as the last-mentioned operation took place on the 31st of July 1730, could not, at the earliest, be before the end of August of that year. But he has totally overlooked the evidence of its success, which the enumeration of Cheselden's cases af-

* Douglass's Appendix to the History of the Lateral Operation for the Stone, p. 2.—Dr. Thomson's Edition, p. 21.

† Cheselden's Appendix to the Fourth Edition of his Anatomy, p. 8.

fords up to this time, and which leaves him, even by his own calculation, only six cases, from which any proof can be derived, of the superiority of the vesical plan of operation, which he has thought fit to describe as Cheselden's. It may, it is true, be imagined, that the fifty-two cases adduced by Douglass as proofs of the superiority of the vesical operation, occurred in the period between Cheselden's forty-sixth operation, which was performed on the 31st of July 1730, and the date of Dr. Douglass's Appendix, July 25, 1731. But the possibility of this supposition (even if he were likely to have had fifty-two operations in less than a year) is entirely done away by the information of the Doctor himself, who tells us, that the "great and uncommon success of Mr. Cheselden's new method, became not only the subject of all conversation here at home, but also very much alarmed the surgeons abroad, particularly those of Paris, from whence M. Morand, of the Royal Academy of Sciences, a most ingenious lithotomist, made a journey to London, on purpose to see Mr. Cheselden cut for the stone."* M. Morand's journey to London was, however, in the month of May 1729, very soon after Mr. Cheselden had performed his thirty-third public operation †. He saw the performance of the four fol-

* Douglass's Appendix, Preface. Dr. Thomson's Edition, p. 17.

† Cheselden's Appendix, p. 11.

lowing operations, during his stay here *; and Cheselden performed nine more in the month of July, making the number forty-six, as above stated †. It is evident, therefore, that Dr. Douglass, in ascribing the great fame obtained by Cheselden to the vesical operation, alludes to cases occurring previously to the publication of Cheselden's Appendix in 1731, and therefore confessedly before the vesical operation was adopted.

I may remark likewise, that Dr. Douglass's account, both of mortality and numbers operated upon, is incorrect; for, instead of Cheselden losing two only of the first fifty-two cases, or saving fifty patients out of fifty-two, as he expresses it, he lost three of the first fifty, which is one-third more ‡; and, instead of there being only fifty-two in the whole, up to July 1731, there were no fewer than sixty-six up to the previous April. We learn this from the communication of M. Morand of April 3d, in which he states, that he had just received from Mr. Cheselden, a list of twenty patients on whom he had operated (still in the original plan), since the publication of the forty-six mentioned in the Appendix §. There is, therefore, the evidence

* Cheselden's Appendix, p. 11. Morand's Recherches. Morand's Eloge.

† Cheselden's Appendix, p. 11.

‡ "Of the first fifty, only three died." Anatomy, p. 332.

§ "Je viens de recevoir la liste des Malades de M. Cheselden taillés depuis celle qui est imprimée dans son Appendix, et

of Mr. Cheselden, as to the first forty-six operations performed by him up to July 31, 1730, and of M. Morand, of twenty more performed by him up to the following April, making sixty-six in four years, during which time, it is clear, that Cheselden made no change in his operation. These accounts were published previously to that of Dr. Douglass, and therefore totally independent of it; and they are in perfect harmony with the statement made by Cheselden, in the after editions of his Anatomy, of his having performed 213 operations, by one uninterrupted and unaltered plan of procedure, of which the above formed the first sixty-six.

It is very singular, that the reasons given by Dr. Douglass, for Cheselden's alleged change from the urethral to the vesical operation, are either insufficient, or inapplicable. These he states to have been, that in the urethral plan, "the bulb of the urethra lay too much in the way; the groove of the staff was not so easily found, and the intestinum rectum was in more danger of being wounded", than in the vesical. But I think I shall have your support in expressing my belief, that no surgeon, with a competent knowledge of anatomy, will have any difficulty in reaching the membranous part of the urethra, without danger

j'apprends qu'il en a taillés vingt, dont il en est mort deux."—Morand's Recherches.

to the bulbous; and, indeed, as Dr. Douglass mentions that the point of the knife is to be directed into the groove of the staff, by the end of the forefinger of the left hand, in the vesical, as well as the urethral operation, (though it is difficult to see for what reason it is done in the former,) it is clear, that if the one operation is liable to this objection, the other is so likewise. That Cheselden twice wounded the rectum, early in the practice of the lateral operation, he candidly owns to M. Morand *; but it is a mistake to suppose, that he considered this accident as originating in a fault in the operation, and that he therefore changed his mode of operating, in consequence. He ascribed it entirely to want of care in the assistant who held the staff, ("faute d'attention à la conduite de la sonde,") which was obviated by greater vigilance; but the operation was continued in precisely the same manner as before such accident happened.

According to Dr. Douglass, this occurrence must have taken place subsequent to July 31, 1730, the date of the last-named operation of Cheselden's Appendix, before which period, the new plan could not have been adopted by Cheselden; and yet it was obviously more than three years be-

* "J'avoüe naturellement, que dans le commencement, il blessa l'intestin rectum à deux malades que cependant guérirent tous deux, et que cela arriva faute d'attention à la conduite de la sonde."—Morand's Recherches, p. 147.

fore, that is, "dans le commencement," that the accident occurred, and the means of obviating it were discovered. So necessary, indeed, did great care always seem to be, in the mind of Cheselden, to avoid the rectum in the operation of lithotomy, that in the first lateral operation employed by him, (that in which injection was used,) he always pressed down the gut with the forefinger of the left hand, to avoid wounding it *; and inculcated the same plan, together with attention to the direction of the knife, both in his instructions to Morand, and in his own descriptions of his operation †.

Dr. Douglass also, seems entirely to have overlooked the successful performance of the stone operation, as narrated in Cheselden's Appendix of 1730; and how little a mortality of only two cases in forty-six (which is the proportion of deaths that had at that time occurred to Cheselden in his public practice) could justify, or be likely to suggest any necessity for a change. The history of Cheselden's professional life shews, that he never either adopted, gave up, or varied an operation, without good reasons; and to imagine, that such a portion of unprecedented success would not satisfy every reasonable expectation, would be to attribute to him a restless hankering

* Douglass on the Lateral Operation, p. 85.

† Suprà, pp. 341. 344, 345.

after change, which did not at all accord with the judgement and equanimity of his character.

I have thus endeavoured to shew, that Cheselden was consistent, faithful, and ingenuous, in the accounts which he gave of his improved lateral operation; and that in these accounts, he is not only confirmed by his friend Morand, but by Dr. Douglass's narration itself.—But if the attention is turned to the anatomy of the parts concerned in Dr. Douglass's assumed operation, I should think it difficult to conceive, that the staff could be felt through the sides of the bladder, *above the prostate*, in such a way as that its groove (which is in the lower or convex part of the staff) should, even when the staff is directed to the right groin, be reached by a distant incision, made *immediately above the prostate*, as directed by Dr. Douglass, and therefore answering to the upper or concave part of that instrument. But if, instead of confining the incision to a part immediately above the prostate, it is made more laterally, I would still submit, that the incision must be made in a distant point, without guidance, and the scalpel projected into the bladder very much at random, so as to search out the groove of the staff, without any effectual assistance in reaching it. I cannot, therefore, forbear expressing my belief, that independently of the other circumstances which I have mentioned, nothing could be more unlikely, according to the ordinary principles of judgement,

than that Cheselden, after devising, and for four years practising, with unparalleled success, and with a reputation which no surgeon had ever acquired before him, a neat, intelligible, and scientific operation, should all at once, and without any apparent cause, put it aside, and substitute the clumsy, vague, and uncertain one, which Douglass attributes to him.

This opinion, however, was formed on anatomical considerations alone; and I was desirous of knowing, from an expert surgeon, whether the objections which I have just mentioned, were well founded; and whether the difficulties which I imagined to attend the operation, as described by Douglass, were easily capable of being obviated. I therefore requested my friend Mr. Cross, one of the surgeons of the Norfolk and Norwich Hospital, to perform on the dead body, in my presence, the operation, as described by Dr. Douglass, giving him a copy of the instructions by which it was directed to be done, without mentioning either my own view of the matter, or from what author the instructions proceeded.

Mr. Cross employed, at my request, a scalpel and staff, very similar in shape and curve to those depicted by Douglass.

After making the external incision, then cutting into the groove of the staff in the mem-

branous part of the urethra, and introducing the forefinger of the left hand to keep down the rectum, he carried his knife backwards, and pierced the coats of the bladder close to the prostate gland on the left side. He reached the groove of the staff within the bladder, and made an incision, after the manner directed, in the groove of the staff through the prostate gland, completing the operation by prolonging the incision, so as to join that which was first made in the membranous part of the urethra. He did not enter the bladder immediately above the prostate, according to the literal directions of Douglass, because he considered it to be quite impracticable to reach the groove of the staff, if the bladder were entered in this way.

On dissection, the bladder was found to be entered by a very small opening, and the left lobe of the prostate divided obliquely, by a clean incision, at about an angle of thirty degrees from the perpendicular, so as to lay open the urethra forward, from its termination in the bladder, to the membranous portion inclusive. The operation was therefore, I conceive, performed as well as possible; but Mr. Cross was of opinion, that it would be in the highest degree unwarrantable to attempt such an operation on the living body, from the distance of the incision made in the bladder, and the want of any guide in effecting it, particularly as the left hand was directed to be entirely

employed in guarding the intestine. That if the left hand were even liberated, (a circumstance for which the directions do not provide,) so as that the forefinger might accompany the projected point of the scalpel, it would only go a small way in removing the difficulty, and could give little or no assistance in reaching the groove of the staff within the bladder, which must be got at, as Mr. Cross thought, entirely by a chance endeavour. That if the operation should ordinarily succeed as well as in the present instance, (and its success Mr. Cross was very much disposed to consider as accidental,) it would accomplish no more than could be effected, with much greater facility and safety, by taking the urethra as the guide for the scalpel, according to the mode of performing the operation which is described by Cheselden himself.—The defects of the operation seem therefore to be so formidable, both from the anatomical reasons which I have stated, and the practical considerations advanced by Mr. Cross, as to make it very difficult to believe that it was ever actually performed.

It is certainly a circumstance not a little remarkable in the history of our profession, that the knowledge of Cheselden's improved operation, should have been sought for rather in Dr. Douglass's account of it, than his own; which is, I presume, to be attributed to the reliance which has been placed on Dr. Douglass's judgement and opportunities of observation; to the ready credence usually given

to confident assertions of historical facts; and to the disinclination which there is, either to ascertain, or to investigate, the evidence on which such facts may depend.

Heister seems to have been one of the first authors who took Dr. Douglass's representation as demonstrative of what Cheselden's improved operation of Lithotomy was; and he gives, by deduction from Dr. Douglass's account, a progression of three different modes of operation employed by Cheselden, which he designates as the *modus primus*, *alter*, and *tertius*. *The first*, was that in which injection was employed; *the second*, that mentioned in the Appendix to the fourth edition of Cheselden's Anatomy, and quoted by Morand, and from which, I venture to think, that Cheselden never deviated; *the third*, that described by Douglass as Cheselden's latest improvement, but which, I presume to conclude, was one that never entered into his contemplation *.

This view of the subject, derived from Douglass on the one hand, and Heister on the other, has been followed by the late Mr. John Bell, in his very valuable work on the Principles of Surgery †, and by several others of the most able and eminent of our English surgical writers.

* Heister's Institutiones Chirurgicæ, p. 976.

† Principles of Surgery, Vol. II., p. 152.

But Heister very fairly admits, what it may be thought should have excited a little further inquiry on his part into the subject, that Morand, whom Cheselden instructed in his operation, and who was therefore the person of all others the best entitled to be acquainted with it, says nothing of the change mentioned by Douglass *. Heister, however, gave credit to Dr. Douglass's statement of such change; and as the Latin edition of his Surgery, in which Cheselden's operation was first mentioned by him, was published in the year 1739, and therefore a year previous to the appearance of Cheselden's fifth edition of his Anatomy, he had not the advantage of knowing that Cheselden, by repeating the account which he had previously published, obviously discountenanced Douglass's representation of a supposed change.

Deschamps, a distinguished hospital surgeon of Paris, in his extensive and valuable work on Lithotomy, gives, from Heister, Douglass's correction of Cheselden's operation, which he erroneously states to have been followed by Sharpe. Sabatier, however, an anatomist and surgeon of the first class, who was the protegé and near connection of Morand, does Cheselden justice; and, in his Mé-

* "Morandus nihil adhuc de, hac methodo proponit, sed præcedentem, No. 19 descriptam," (alluding to the mode in which he was instructed by Cheselden) "pro optimâ declarat." —Heister's Institutiones Chirurgicæ, p. 977.

decine Operatoire, published in 1796 *, has given a correct exposé of Cheselden's practice, in which he has been since followed by the Baron Boyer, in nearly the same words †. With regard to Deschamps, it is singular that he should have been so little acquainted with the works of the author whose views he professed to expound, as not to have known whether Cheselden cut the spongy, or membranous part of the urethra ‡; though Cheselden says distinctly, in his fifth, and every subsequent edition of his Anatomy, that he cuts upon the staff "in that part of the urethra which lies *beyond* the corpora cavernosa urethræ."

Dr. Douglass evinced much anxiety to take an active part in every thing which related to the operation of lithotomy; and, as Mr. John Bell states of him, not only laid claim "to the discovery of Rau", but "was in haste to explain the operation of Cheselden before he understood it." § It is remarkable, however, that with this im-

* De la Médecine Operatoire, Tome IV. P. 251—Dupuytren's Edition.

† Traité des Maladies Chirurgicales, et des Operations qui leur conviennent, Tome IX. P. 356.

‡ "Cheselden ne dit point positivement la partie de l'urètre qu'il incisoit: il y a apparence qu'il attaquoit la partie spongieuse, si l'on en juge par la hauteur de son incision extérieure; car autrement il étoit tout-à-fait inutile qu'il la commençât aussi haut."—Traité Historique et Dogmatique de l'Operation de la Taille, Tome III. P. 101.

§ Bell's Principles of Surgery, Vol. II. P. 148, Note.

pression as to Douglass's first publication on the lateral operation, Mr. Bell, who was a man of singular acuteness of mind, should have been induced to rely implicitly on Dr. Douglass's accuracy, and to overlook the collision of his statements with those of Cheselden. Sobriety of judgment was a prominent feature of Cheselden's character; but Mr. Bell, from his dependence on Dr. Douglass's authority, attributed to Cheselden the "enthusiasm of an inventor"*; and represented him as possessing an undue confidence in an operation, which, though he described it as one which he should see no "reason to change", it was erroneously believed that he actually "did change, and that in the very next season for cutting for the stone" †.—Cheselden naturally wished to be the expositor of his own views, to which he was well

* Bell's Principles of Surgery, Vol. II. P. 152.

† Ibid, P. 150.

Mr. Bell quotes Morand as stating, that Cheselden cut, *while Morand was in London*, "twenty-seven patients without losing one."—Principles of Surgery, Vol. II. P. 144. But he mistakes Morand's meaning, as that gentleman only saw *four* operated upon in London by Cheselden, (Opuscules, P. 118; Cheselden's Appendix, P. 11,)—and merely states, that Cheselden cut, "*at the first*", (that is, when he first began to practise the improved lateral method,) "twenty-seven patients, in succession, without losing one." "Il tailla *d'abord* vingt-sept malades de suite, sans en perdre un."—Opuscules, 2de Partie, P. 118. Mr. Bell likewise errs in mentioning, that Morand had often seen Cheselden extract a stone in *twenty-four seconds*. The period mentioned is *fifty-four seconds*.—Opuscules, P. 118.

qualified to do justice; but with a recollection, perhaps, of unauthorized and premature statements*, he was rather on the reserve with regard to the nature of his improved lateral operation of lithotomy, previously to the time of Morand's visit to this country, and therefore suffered public opinion (as Morand informs us) to be uncertain as to the parts which were cut in the

* Mr. Cheselden's first lateral operation (that in which injection was employed) was a variation of that which was supposed to be done by Rau; and Dr. Douglass (as I have already stated from Mr. John Bell) laid claim to some share in the discovery of this mode of operating. "Of these ways," says he, "*I always reckoned that practised by Professor Rau to be one*, long before I had heard of his true method, or even of that of Frere Jacques, from which it is taken; and indeed my preparations will serve to direct in every step of his operation, and point out the parts that are either to be cut, or avoided in it, as fully as if I had had Albinus's Book" (in which Rau's method is described) "before me when I went about them." (History of the Lateral Operation, p. 81.) Dr. Douglass speaks with great confidence of this operation, and was anxious to describe it, when but "seven patients," that he knew of, had been cut in that way (p. 87). But though he gave it as his opinion, with an almost paternal feeling of attachment, that there was "nothing wanting" in this method of performing the lateral operation, by which it could be "in any respect improved, except the use of crooked forceps upon some occasions", (p. 87.) yet Cheselden had only cut ten in all, (being but three more than the number which occasioned this favorable anticipation,) when he gave it up entirely, from experiencing the most serious inconveniences by this mode of operating, which occasioned the loss of no fewer than four of that number.—Anatomy, p. 329; Appendix to 4th Edition of Anatomy, p. 7.

internal incision *. That this reserve did not, however, arise from any unworthy motive of concealment, was evinced, not only by the facilities which he gave to Morand's investigations, but by himself publishing the description of his operation, the year after Morand's visit to this country. It must, no doubt, have excited Cheselden's surprise, that Dr. Douglass, in less than a year from this publication, should have thought himself justified in coming forward to intimate a change in Cheselden's mode of operating, instead of leaving this to be done by himself; but with a peculiar exemption from every irritable feeling, (of which this, however, is not the only example,) Cheselden never even alluded, in any of his works, either to Dr. Douglass's interference, or misconception. He offered, however, tacitly and unostentatiously, a neat, and what might fairly have been regarded as an effectual correction of Dr. Douglass's misapprehension, by republishing, as I have stated to be the case, in the earliest subsequent edition of his anatomy, and in Dr. Douglass's life-time, the original account of his operation (which Dr. Douglass reported him to have changed) in very nearly the identical words which he first employed to describe it.

The tone of protection exercised by Dr. Doug-

* "Pour lors M. Cheselden laissoit flotter les opinions sur la détermination des parties entamées par son incision intérieure. —Morand's Recherches.

lass to Cheselden, and the anxiety displayed for his reputation, and for the credit of English surgery, might have been admissible and praiseworthy, if directed to introduce, or to foster, the early efforts of a tyro in the profession; but you will agree with me, I doubt not, in thinking, that they were somewhat misplaced to a man like Cheselden, of mature age, who had been twenty years a distinguished member of the Royal Society, and teacher of anatomy; who was at the very summit of professional rank, emolument, and reputation; and was, moreover, well known as a perspicuous, able, and correct writer.

In reviewing the circumstances of Cheselden's improved lateral operation, I have felt it necessary to go into much further detail than I at first anticipated; but I trust that you will not regard the evidence to which I have requested your attention as superfluous or inappropriate, when it is considered how extensively Dr. Douglass's authority has directed the opinion of surgical writers, both in this and other countries, as to their apprehension of the precise nature of Cheselden's lateral operation; and how desirable it is, that the character and merits of that great surgeon, should be properly understood and appreciated.—Few circumstances have ever occurred of a nature more honourable to the medical profession in this country, than the mission of Morand, by the French Government, for the purpose of being

instructed in the nature of Cheselden's operation: and no persons could have been found, whose character for knowledge, zeal, and liberality, better qualified them, than Cheselden and Morand, for communicating with each other, in a matter so interesting both to humanity and science. Morand, the first surgeon in Paris, so far from considering it beneath him to go to a rival country for professional instruction, himself proposed the expedition. He deemed it best, he tells us, to go to the light, from whatever quarter it might proceed; and he spoke of Cheselden with feelings of friendship, esteem, and gratitude. The Royal Academy of Sciences elected Cheselden a corresponding member; and the Royal Academy of Surgery had the great gratification and credit, almost at its formation, of nominating him a foreign associate: but Cheselden bore his honours so meekly, that in no part of his works, does he mention the distinction conferred upon him by Morand's visit to this country.

The openness and liberality evinced by Cheselden to Morand, afforded, I may remark, a singular contrast with the conduct of Rau, a few years before, to Albinus; whom he pretended to instruct in his lateral operation, but actually deceived. The success which attended Rau's practice, is stated to have been unexampled in the history of surgery; for he is represented as having cut 1547 patients without ever losing one. The account is altogether incredible; but I am surprised that the

refutation of it, which is afforded to a certain extent by the celebrated Camper, the successor of Rau and Albinus in the chair of anatomy and surgery at Leyden, has been entirely overlooked by those authors who have had occasion to notice the circumstance: for that distinguished physician informs us, that on examining the register kept at the College of Surgeons of Amsterdam, by order of the magistracy, he found that Rau lost four cases of twenty-two whom he cut for the stone in that city, or one in five and a half*. Camper tells us, that he had no other opportunity of ascertaining, by unquestionable documents, the result of Rau's operations; but this fact is sufficient to shew how little dependence was to be placed on Rau's asseverations of his success.

I remain, my dear SIR,
With esteem and regard,
Your faithful and obedient servant,
JOHN YELLOLY.

CARROW ABBEY, NEAR NORWICH,
APRIL 8, 1829.

* "Dubito etiam vehementer Ravio toties ex sententiâ successisse curam, quoties ipse gloriatur. Mille, quingentos, et quadraginta septem ægros se sanasse jactat: numerum concederemus, si de curatione, non de sanatione ageretur; silentio præterit quot mortui fuerint. Diarium igitur, quod jussû magistratûs in Collegio Chirurgico de sectis à calculo servatur, adii, atque ex duobus supra viginti, quos Amstelædami secuit, quatuor mortuos fuisse comperi: *ex undecim igitur duos amisit;* plures adnotiones circa successum curationum ab eo institutarum, ad manus meas non pervenerunt." Petri Camper Demonstrationum Anatomico-Pathologicarum liber secundus. Pag. 14.

PATHOLOGICAL RESEARCHES

ON

INFLAMMATION

OF

THE VEINS OF THE UTERUS,

WITH

ADDITIONAL OBSERVATIONS ON

PHLEGMASIA DOLENS;

BY ROBERT LEE, M.D.

PHYSICIAN-ACCOUCHEUR TO THE BRITISH LYING-IN HOSPITAL.

Read 13th and 27th October, 1829.

IN a former communication, which I had the honour of presenting to this Society, on the pathology of Phlegmasia Dolens *, I was led, from a series of facts, to infer, that inflammation of the iliac and femoral veins gives rise to all the phenomena of that disease in puerperal women. Subsequent dissections have enabled me, not only to confirm the accuracy of my former observations, but have led me to discover the important pathological fact, that in Phlegmasia Dolens, the inflammation commences in the uterine branches of the hypogastric veins, and subsequently extends from them into the iliac and femoral trunks of the affected side.

* See page 132.

The object of the present communication is, to submit to the consideration of the Society the various facts which appear to establish the truth of these general views of the nature and origin of Phlegmasia Dolens; and to detail the observations I have made on inflammation of the uterine veins.

Case I.—Phlegmasia Dolens, followed by the usual symptoms of phlebitis and death. The principal abdominal veins, and those of the right inferior extremity, inflamed and obstructed.

Mrs. Edwards, æt. 35, No. 54, King Street. 16th of April, 1829, was delivered of her second child, three weeks ago, after a natural labour, and on the 9th inst. was attacked suddenly with pain in the calf of the right leg, and loss of power in the whole right inferior extremity.

On the 13th, a considerable swelling, without discolouration, had taken place from the ham to the foot, and great tenderness was experienced along the inner surface of the thigh to the groin.

The extremity is now universally swollen, painful, and deprived of all power of motion. The temperature along the inner surface of the limb is increased; the integuments are pale and glistening, and do not pit upon pressure. There is no pain in the hypogastrium, but pressure along the course of the crural vessels excites great suffering,

and the vein from the groin to the middle of the thigh is indurated, enlarged, and exquisitely sensible. There is also great sensibility in the ham, and along the inner surface of the leg to the ankle, where some branches of the superficial veins are hard and painful on pressure. Pulse 80; tongue much loaded; thirst; bowels open. There was no rigor, or symptom of pyrexia, at the invasion of the disease. She states, that the veins of the right extremity were more distended during pregnancy than those of the left.

Twelve years ago, after the birth of her first child, the patient and her relatives report, that she experienced an attack similar to the present, in the same limb, and that it remained in a weak condition for several months afterwards, but ultimately recovered its natural size and power.

18th April. The tension and increased heat along the inner surface of the limb are somewhat diminished, but the pain continues in the course of the vessels.

May 1st. Affection declining. The femoral vein cannot now be felt, but there is still a sense of tenderness in its course down the thigh. No pitting on pressure. She has suffered, during three or four days, considerable uneasiness between the umbilicus and pubis, as well as in the loins, and has had rigors, with quick pulse, loaded tongue,

and thirst. The abdomen is soft, but tender on pressure around the umbilicus.

9th. The swelling of the limb is nearly gone, as is the tenderness in the course of the femoral vessels. For several days past, she has experienced attacks of acute pain in the umbilical region, loins, and back, which have assumed a regular intermittent form. Every afternoon there has been a violent rigor, of an hour's duration, followed by increased heat and profuse perspiration. In the course of the last and preceding nights, there was slight delirium. The skin is now hot and dry; the pulse 125; the tongue brown and parched; bowels open.

The abdomen is neither tense nor swollen. On pressing around the umbilicus, she complains of a deep seated feeling of soreness. A strong vibratory motion, corresponding with the pulsations of the heart, is perceived in the epigastrium.

21st. The febrile attacks gradually declined in severity, and she appeared to recover, until yesterday, when she had a long and violent fit of cold shivering. The countenance is now expressive of great anxiety, and the pulse extremely quick and feeble. There remains no visible trace of the affection of the lower extremity.

23rd. Has been vomiting ever since yesterday,

at intervals of half an hour. Complains of great pain in the left side, increased upon taking a deep inspiration. The pulsation in the epigastrium diminished, although it is still clearly perceived: pulse 120, and soft.

24th. Symptoms continue without alleviation. Has had a severe shivering fit of long duration. Skin hot and dry; pulse 140; tongue brown and parched; diarrhœa. The pulsation in the epigastrium has entirely disappeared; the pain in the left side of the thorax is diminished; but the respiration is hurried, and there is frequent cough. Great prostration of strength. Surface of the body has assumed a peculiar sallow tinge. She has been delirious in the night, but is now perfectly conscious when roused.

The conjunctiva of the right eye has suddenly become of a deep red colour, and so much swollen, that the eyelids cannot be closed. The cornea is dull, she makes little complaint of pain of the eye, and there is no intolerance of light. The vomiting has ceased.

25th. Has again had repeated attacks of vomiting. Debility rapidly increasing; respiration hurried; incessant hacking cough; pulse 140, extremely feeble; surface of the body cold and clammy; the tongue and teeth covered with dark

sordes; diarrhœa. The left eye has also become red and swollen, without much increased sensibility.

26th. Great debility; when undisturbed she is delirious, but is conscious when roused, and complains of pain in the left side of the chest. Pulse above 140. Tongue black and dry. Conjunctiva of left eye also affected with swelling and intense redness. The cornea is dull, and shreds of lymph appear to have been effused over the left iris.

28th. Had so violent a rigor in the afternoon that the bed shook under her. She is now completely insensible. The eyes are red and swollen, and there is a copious secretion of an opake fluid from their surface and from the eye-lids, which cannot be closed. The respiration hurried. Pulse 140.

31st. Has recovered her consciousness, and drank cider and porter with great eagerness. Pulse rapid and feeble. Eyes so much swollen that they seem pushed forward from their orbits. Vision entirely lost; but hearing and the other senses remain.

2d June. Great debility. A red puffy swelling has suddenly appeared over the right elbow joint. Tongue dry and black; diarrhœa; frequent, or rather constant wandering, except when spoken

to, when she answers questions distinctly, and complains only of pain in the chest, with difficult respiration and cough.

10th. Little change has taken place in the symptoms; but she has become much weaker. The vision is lost, but the hearing is perfect, and she makes no complaint of pain in any part of the body.

15th June.—Died this morning.

Morbid appearances on examining the body of Sarah Edwards on the 16th June.—Present, Drs. Sims and Locock.

Thorax.—In its left cavity were contained upwards of two pints of a thin purulent fluid, and extensive recent adhesions existed between the pleura covering the lower margin of the superior lobe, and the pleura costalis. The surface of the inferior lobe was coated with a thick layer of flocculent coagulated lymph, as was a corresponding part of the pleura costalis. The substance of this lobe was of a dark colour approaching to black, and soft in texture, so as to be readily broken down with the fingers. In its centre about an ounce of thick cream coloured pus was found deposited in the dark coloured and softened lung. This was not contained in any cyst or membrane, but infiltrated into the pulmonary tissue.

In the right cavity of the chest recent adhesions also existed at the inferior part. A considerable portion of the right inferior lobe was entirely changed from the healthy structure, being converted into a dense, solid, dark red coloured mass. On the anterior surface of this lobe the pleura was elevated as if by a hard irregular tumour, but when cut into, no pus escaped from this part, and it presented only the appearance of the surrounding portions of lung with a greater degree of condensation.

Vena cava inferior. Coats of the vessel considerably thickened, and the internal, where visible, of a scarlet colour; its whole cavity occupied by a coagulum, distending it to its utmost extent, and terminating in a loose pointed extremity about an inch below the entrance of the vena cava hepatica. The coagulum, covered with a membranous-like investiture of a bright red colour, throughout firmly, and in many places inseparably adherent to the inner lining of the vein; the substance within it varied in consistence and colour, in some parts it presented the appearance of coagulable lymph, in others it was a pultaceous dull yellow mass, made up apparently of pus and lymph blended together. The exterior of the firmer portions were separated into layers, which gradually disappeared as they approached the centre. The mouths of all the veins emptying themselves into the cava were sealed up, the emul-

gents excepted, the coagulum, near the entrance of these vessels, hanging loosely within the cava.

Left common iliac and its branches. Its interior plugged up with a continuation of the coagulum from the cava, and differing in no respect from it either as to consistence, colour, or the firmness of its adhesions to the inner tunic of the vein; it was continued beyond the entrance of the internal iliac, (which it completely closed,) and terminated in a pointed extremity about the middle of the external iliac; neither the remainder of this vessel nor the femoral vein exhibited any morbid changes. The internal iliac was much contracted and lined with a thick adventitious membrane.

Right common iliac and its branches. This vessel was contracted to more than one half its natural size; it was firm to the touch, and of a grayish blue colour, to its internal coat adhered an adventitious membrane of the same colour, containing within it a firm coagulum, made up of thin layers of dense lymph. The internal iliac was rendered quite impervious by dense dark-coloured bluish membranes, and at its entrance into the common iliac was converted into a solid cord.

The contracted external iliac contained within it a soft yellowish coagulum, similar to the one in the cava; its coats were three or four times their

natural thickness, and lined with dark-coloured membranous layers.

The *femoral vein*, from Poupart's ligament to the middle of the thigh, was diminished in size, and almost inseparable from the artery. Its tunics were thickened, and its interior coated with a dense membrane surrounding a solid purple coagulum strongly adherent to it. The superficial and deep femoral veins were in a similar condition, and the saphena major and minor differed from the femoral veins only in the size of the coagulum they contained, which was slender, and had formed no adhesions with the layers of lymph lining their cavity.

The cellular membrane and other textures of the limb were in a perfectly healthy condition, and in size and appearance there was externally no visible difference between the two extremities.

The morbid alterations of structure now described, can still be distinctly seen in the preparation of the diseased veins, and have been represented with great accuracy in the beautiful drawing made by Mr. Perry, from the parts immediately after their removal from the body.

Case II.—History of a patient who died of tubercular phthisis, subsequent to an attack of Phlegmasia Dolens.

Mrs. Foster, æt. 25, No. 27, Little Windmill-street, out-patient of the British Lying-In Hospital.

May 8, 1829. Previous to her confinement, six weeks ago, she had been affected for several months with pain in the chest, difficulty of respiration, cough, with copious expectoration of a matter tinged with blood, profuse perspirations in the night, and had become greatly emaciated.

During the last fourteen days, she has been suffering from attacks of pain in the bowels and diarrhœa.

On the 4th instant she experienced a sense of soreness in the left groin, which gradually extended along the inner surface of the thigh to the ham, and from thence along the posterior surface of the leg to the foot. She stated, that for two days before the occurrence of pain in the groin she had felt great uneasiness in the region of the uterus, that this suddenly quitted the hypogastrium and passed into the groin, and that from thence it extended downward along the inner surface of the thigh and leg. The limb became swollen twenty-four hours after the invasion of the pain.

The whole left inferior extremity is now affected with a hot, painful, colourless swelling, nowhere pitting on pressure, except over the foot. The

thigh is double the size of the other, and any attempt to move the limb produces excruciating pain along the inner surface of the thigh; and the pain excited by pressure along the tract of the femoral vein is so acute that the condition of this vessel cannot be ascertained. Several branches of the saphena major above the knee are distended and hard; pulse 120; respiration quick and laborious; tongue peculiarly red and glossy; diarrhœa continues.

10th. Pulmonary affection aggravated. The limb continues extremely painful, and is still more swollen. The groin is so tender that she cannot endure the slightest pressure over it. The same is the case with the inner surface of the thigh. The branches of the saphena vein are still hard and painful.

11th. The femoral vein, under Poupart's ligament, can now be felt indurated and enlarged, and it is exquisitely painful when pressed, as is the inner surface of the thigh, the ham, and the calf of the leg. There is comparatively little tenderness along the outer surface of the limb; pulse 120; skin hot.

17th. Diarrhœa, emaciation, colliquative sweats, and difficulty of respiration increasing. The left inferior extremity is still much swollen, but there

is less pain at the groin, and in the course of the femoral vessels. The foot and ankle pit on pressure.

26th. Calf of the leg still swollen and painful.

June 19. The pulmonary affection aggravated, and she is now reduced to a state of extreme debility. The limb is still considerably swollen and is universally œdematous.

24th. Died this morning.

Dissection.—Present Dr. Sims and Mr. Prout.

Thorax. Extensive adhesions between the pleuræ on both sides. Scarcely a portion of lung could be observed which did not contain tubercles, in various stages of their growth. The right and left superior lobes contained several large tuberculous excavations.

The vena cava and right common and external iliac veins were in a sound state.

The left common external and internal iliac veins were all impervious, and had undergone various alterations of structure.

The common iliac, at its termination, was reduced to a slender tube, about a line in diameter,

which was lined with a bluish slate coloured adventitious membrane. The remainder of the common and the external iliac veins were coated also with a dark coloured membrane, and their centre filled with a brownish ochrey-coloured tenacious substance, rather more consistent than the crassamentum of the blood.

The left hypogastric or internal iliac vein was in the same condition, but in some places reduced to a cord-like substance, and its cavity throughout completely obliterated. The branches of this vein taking their origin in the uterus, and usually termed the uterine plexus, were found completely plugged up with firm reddish coagula of lymph. From the commencement of the branches of this plexus of the hypogastric vein to the termination of this vein in the iliac, the whole had become thickened, contracted and plugged up with coagula and adventitious membranes of a dark blue colour.

The same changes had taken place in the uterine plexus and trunk of the right hypogastric vein, from the uterus to its unusual termination in the left common iliac vein.

The coats of the left femoral vein were thickened, and closely adherent to the artery and surrounding cellular substance; its whole interior lined with an adventitious membrane, and dis-

tended with a reddish coloured coagulum. The same morbid changes presented themselves in the deep and superficial branches as far as they were examined down the thigh *.

Case III.—Phlegmasia Dolens terminating fatally seven weeks after delivery. Iliac and femoral veins disorganized by inflammation.

Mrs. Mason, æt. 42, No. 3, Little Vine Street, August 29th, 1829, four weeks ago, was delivered of twins, and before the expulsion of the placenta, had nearly perished from uterine hemorrhage. Considerable tenderness of the uterus succeeded and remained until the 27th instant, when, without any apparent cause, she had a violent fit of cold shivering, followed by febrile symptoms, and pain in the right iliac region and groin.

Yesterday morning the pain increased in severity, and extended down the inner surface of the thigh towards the ham, and in the evening the whole thigh and leg was perceived to be considerably swollen.

At present the whole right inferior extremity is affected with a general intumescence, and is completely deprived of all power of motion. The temperature of the limb, particularly along the inner surface, is much higher than that of the

* See Plate VI. at end of book.

other, but the integuments retain their natural colour, and do not pit on pressure. The femoral vein, for several inches under Poupart's ligament, is very distinctly felt enlarged, and is very painful when pressed. Out of the course of the crural vessels little uneasiness is produced by pressure. In the right side of the hypogastrium there is also great tenderness; pulse 120; tongue furred. She appears pale and depressed, and complains of deep seated acute pain in the lower part of the spine when she attempts to move.

August 31. The pain continues in the groin, and along the inner surface of the thigh. The glands in the groin are painful and tumid. The limb is considerably swollen, and the temperature is increased. Febrile symptoms continue.

September 8th. There is less pain in the limb, but the femoral vein can still be felt large and hard, and is painful on pressure. The foot and leg pit. She has suffered much from rigors, and has had repeated attacks of diarrhœa; pulse quick, with great prostration of strength.

14th. The limb is now œdematous, and nearly free from pain. She has complained of tenderness in the left groin and thigh, but nothing unusual can be perceived in the seat of the pain. During the last four days she has had repeated attacks of cold shivering, and has suffered severely from dia-

rrhœa, and deep seated pain in the lower part of the back; pulse 130, and feeble; tongue white.

From the 15th to the 22d, when she died, she was occasionally delirious, and made no complaint of pain except in the back; pulse 140; tongue dry and furred. Frequent attacks of diarrhœa and severe rigors. Both inferior extremities were œdematous.

Dissection.—Present Mr. Prout.

The veins presented nearly similar appearances to those observed in the preceding cases, and the drawing and preparation will convey a more correct idea of the changes they had undergone, than any verbal description *.

The divisions of the vena cava were in this instance both affected. On the left side, the cavities of the iliac and femoral veins were filled with a dark purple coagulum, their coats being not much thicker than natural; whilst, on the right side, the coats of these veins were dense and ligamentous, and the cavities blocked up by adventitious membranes, or lymph of a dull yellow colour.

The lower part of the vena cava, for the space of two inches, as well as the right common iliac

* See Plate VII. at end of book.

was obstructed by a tough membrane of lymph surrounding a soft semifluid yellowish matter.

The right common, external, and internal iliac veins were imbedded in a mass of suppurating glands, the purulent fluid of which had escaped into the adjacent cellular membrane, and forced its way downwards in the course of the psoas muscle, as low as Poupart's ligament.

The right hypogastric vein was reduced to a small impervious cord, and its branches distended with coagula of lymph of a bright red colour.

The right femoral and its branches were in like manner impervious, their coats being greatly thickened, and their interior occupied by coagula.

The cavities of the left common external iliac and hypogastric veins contained soft coagula, disposed in layers, which adhered to the inner tunic of the vessel.

The trunk of the left hypogastric vein was contracted, its coats somewhat thickened, as well as its branches filled with red coloured, worm-like coagula. The spermatic veins were healthy.

The lower extremities were both infiltrated with serum.

Cases IV, V, and VI.—Inflammation of the iliac and femoral veins after parturition, which exhibited the characteristic symptoms of the milder forms of Phlegmasia Dolens.

May 9th, 1829. A young woman, residing in King-street, St. Anne's, had a severe attack of uterine inflammation a few days after delivery, which took place three weeks ago. She seemed to recover in a favourable manner, until the 6th inst., when she suddenly experienced a sense of acute pain in the calf of the left leg, which was soon followed by increased heat and swelling of the part.

There is now considerable tumefaction of the whole left inferior extremity, the integuments are hot, and along the tibia there is pitting on firm pressure. There is great tenderness to the touch in the calf of the leg, the ham, and along the inner surface of the thigh to the groin, in the course of the femoral vessels. The inguinal glands are enlarged and painful, and the femoral vein under Poupart's ligament is felt considerably indurated. Above Poupart's ligament, in the direction of the brim of the pelvis, there is increased sensibility on pressure. Slight constitutional disturbance.

August 29th. The swelling of the extremity has disappeared, but the limb still remains stiff and feeble. During the last fourteen days, the swell-

ing of the inguinal glands, which had never completely subsided, has increased, and they are now in a state of suppuration.

Mrs. Masters, æt. 31, Caroline-street, Great Russel-street, was delivered by instrumental aid of a still-born child, on the 1st July, 1829. On the 7th, she had rigors, and a sense of tenderness in the hypogastrium and left groin. In the course of the three following days, the pain extended gradually along the inner surface of the thigh to the ham and leg, and a general intumescence of the limb took place.

July 11th. The left lower extremity is hot, swollen, but not discoloured. Increased sensibility in the course of the femoral vessels; but the vein cannot be distinctly perceived, though its course is exquisitely painful when pressed. There is no fulness or tenderness in the region of the uterus; but she complains much of a painful sense of throbbing in the lower part of the abdomen. Countenance pale and depressed; pulse 120; sickness and vomiting; tongue furred.

13th. The femoral vein can now be felt, large and hard; the thigh is greatly swollen; constitutional symptoms continue.

August 31st. The extremity is still swollen,

painful, and feeble; vein cannot be felt. Health restored.

Dr. Sims saw this patient with me during the acute stage of the complaint.

A young woman, a patient under the care of my friend, Dr. Forbes, at the Surrey Dispensary, was attacked, on the fifth day after delivery, with acute pain in the region of the uterus, rigors, and suppression of the lochia. On the 7th, the pain extended into the left groin and upper part of the thigh, and a considerable swelling took place in the calf of the leg.

On the thirteenth day subsequent to delivery, (October 5th, 1829,) the limb was swollen to nearly double the size of the other; the integuments were hot, but of a pale shining colour, and along the tibia and upper surface of the foot they pitted upon pressure. Great pain was experienced on pressing the inner surface of the thigh, ham, and calf of the leg; while no complaint was made of the strongest pressure along the outer surface of the limb. The femoral vein, for a space of three or four inches under Poupart's ligaments, was painful when pressed, and felt like a hard cord. The branches of the saphena were distended, but not painful. Pulse 120; great prostration of strength.

A similar affection took place, a few days after, in the right inferior extremity, and the femoral vein was also distinctly felt enlarged.

Note.—November 1st. She is reported to be gradually recovering, though the limbs are still swollen and painful.

In the case of Mrs. Edwards, the first of the fatal cases now related, there succeeded, after a short interval, to the usual symptoms of Phlegmasia Dolens, those which characterize phlebitis in its severest forms; viz.—rigors, prostration of strength, rapid feeble pulse, low wandering delirium, attacks of vomiting and diarrhœa, with brown parched tongue, and ultimately rapid and destructive inflammation of the eyes, and purulent deposits in the substance of the lungs.

The morbid appearances which were observed in the veins also demonstrate, that the alterations in the structure of that system of vessels were produced by inflammation, and, further, that the right iliac veins were affected at a much earlier period than the vena cava and those of the left side. The veins of the right side were partially obliterated, and the principal changes they had undergone appeared to be of long standing, and to be perfectly distinct, in respect to the period when they had taken place, from those observed

in the other veins, and to be referrible to the effects of the first attack of Phlegmasia Dolens.

Though the branches of the hypogastric veins were not traced to the uterus, from the unfavourable circumstances in which the dissection was made, and although no sign of recent disease could be perceived in the tissues of this organ, yet, from the complete obliteration of the trunks of the hypogastric veins, and the contracted and reduced state of their coats, it may be reasonably supposed, that their branches were similarly affected, and that the disease originated in them.

The history of the second and third cases now related, and the morbid alterations of structure in the iliac, femoral, and hypogastric veins, demonstrate that these changes were the result of inflammation, which inflammation had commenced in the uterine branches of the hypogastric veins, and extended along their internal membrane, to the great venous trunks of the pelvis and inferior extremities.

Although these are the only cases of Phlegmasia Dolens, wherein the affection of the iliac and femoral veins has been distinctly traced to the venous system of the uterus, yet they would perhaps of themselves warrant me in drawing the inference, that the disease generally commences in the uterine veins, and that it is not a mere local affection of the limb. This general conclusion

will, however, derive strong additional support from the following facts, which I adduce from the works of different authors.

A case of obliteration of the vena cava and its principal branches after parturition, has been recorded by Mr. Wilson, where the inflammation which had produced the morbid appearances must have originated in the uterine veins. "The coats of the emulgent veins and of their branches, were thickened, and their cavities filled with coagulable lymph. Both the spermatic veins were remarkably thickened, and their cavities completely obliterated, as were the primary iliac veins, until they had nearly reached the groin and the internal iliac veins with most of their branches, particularly those which returned the blood from the uterus.

"The uterus was much larger than usual, the coats of its principal veins were thickened, and their cavities partially obliterated. The small branches, both in its substance and in its internal surface, were very numerous and much distended with blood. The vessels of the lower extremities were in a perfectly healthy condition; no accumulation of the blood had taken place in the veins, nor had any watery fluid collected in the cellular membrane."

The anastomosing branches of the veins on the sides and back part of the pelvis were much en-

larged, as were also those between the vena saphena major and the branches accompanying the deep seated arteries, passing through the foramen magnum ischii and the sciatic notch; large communications existed between the venæ pudicæ externæ and the lower branches of the inferior mesenteric vein, which was enlarged to treble its natural size. The veins coming from the sinuses of the dura mater, in the vertebral theca, the sinuses themselves, and the veins entering them, were much enlarged, and the communications between them and the sacral and lumbar veins were, by the blood contained in them, rendered very apparent. The lumbar veins anastomosed with the vena azygos, which was three times its natural size. The blood, which entered the mesenteric vein, passed from thence to the vena portæ; it circulated afterwards through the liver, and passed through the small portion of the vena cava which remained previous to the right auricle.

Two other cases of a similar description are mentioned by Mr. Wilson, in both of which the veins of the uterus contained pus *.

As none of the symptoms of Phlegmasia Dolens were present in either of these cases, and as neither pain nor swelling occurred in the left inferior extremity of the patient whose case I first detailed,

* Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge. Vol. III.

though the common and internal iliac veins were both completely impervious, it would seem to follow, that it is essentially requisite to the production of the disease that the inflammation should extend from the iliac into the principal veins of the extremity. In all the examples of Phlegmasia Dolens which have come under my observation, this extension of the inflammation has been distinctly marked by increased sensibility, and by a hard and distended state of the femoral vein, from Poupart's ligament to some distance along the inner portion of the thigh.

Though the condition of the uterine veins in the following case, related by Meckel, is not described, it is more than probable, that the morbid appearances observed in the crural veins originated in those of the uterus. "A short time after parturition, a woman was attacked with fever, pain of the abdomen and pelvis, which soon disappeared, but returned in three weeks, and were accompanied with expectoration and pain in the region of the liver and left haunch. The left thigh also became affected with excruciating pain. On examining the body after death, the abdominal cavity was found to be filled with pus, the liver much enlarged, but the lungs healthy. The crural vessels and nerves were surrounded with a puriform matter. The crural vein was filled with pus and blood, and its coats indurated. Its internal membrane was more spongy than usual, and covered

with a very distinct false membrane, which peeled off in flakes." *

M. Bouillaud describes the coats of the left iliac and hypogastric veins, in his second case, as thickened, and their exterior layers disorganized, ("comme disorganizées et lardacées.") †

In Mr. Lawrence's account of the morbid changes observed in the first case related by Dr. Davis, no particular mention is made of the condition of the hypogastric veins, nor does it appear that the course of these vessels was traced to their termination in the iliacs. Mr. Lawrence, indeed, observes, that the uterus, and its appendages and blood-vessels, were healthy. To express a doubt of the accuracy of so distinguished an anatomist may be considered presumptuous; yet, from my own experience in the investigation of the diseases of the uterus, I may, perhaps, be allowed to say, that unless the attention had been directed in a particular manner to the vessels of this organ, their morbid state might easily have escaped detection.

The condition of these vessels in Dr. Davis's second and third cases is likewise unnoticed, but in the fourth, it is stated, "that the left internal

* Sasse de Vasor. Sanguif. inflamm. Dissect. Halæ, 1797.

† Archiv. Gener. de Médecine. Tom II. p. 192.

iliac was greatly inflamed, and its diameter so much contracted by the morbid thickening of its parieties, that it was rendered almost impervious. On making an incision into the left external iliac, it was found to contain a coagulum of blood of firm consistence, but not at that part adherent to the internal surface of the vein. Upon examining, however, the common iliac portion of the vessel, adhesion of the same column of coagulum had obviously taken place." *

From what is now known respecting the progressive changes uniformly witnessed in cases of phlebitis, these appearances of the iliac veins demonstrate, that the inflammation did not commence, as Dr. Davis has supposed, in the external or common iliac, but that it originated in the left hypogastric vein.

In the first example of Phlegmasia Dolens published by M. Velpeau, not only were the coats of the principal veins of the affected extremity of a red colour, and thickened, but all the branches which form the hypogastric vein were filled with an adherent concrete purulent matter.

The appearances in the second case are thus described :—" The peritoneal coat of the uterus was inflamed, and several purulent deposits found

* Medico-Chirur. Transact. Vol. XII.

in the substance of this organ. The veins of the uterus contained pus, where the placenta had been attached; on the left side, most of these veins were filled with pus, and the branches which formed the hypogastric, and which came from the groin and vulva, contained the same matter, mixed with a dark coloured grumous blood. The right inferior extremity was slightly swollen, the left greatly so. Large abscesses were found in the cellular substance between the muscles, pus was also found in the deep veins, in the femoral, iliac, and vena cava, and right auricle." *

Dr. Gooch had an opportunity in 1823 of examining the uterus of a patient who had died of Phlegmasia Dolens, and he found the uterine sinuses severely inflamed, several of them being plugged up with lymph, and their inner surface coated with a membrane of a red mulberry colour. The state of the hypogastric and iliac veins was not ascertained. This fact was communicated to me by Dr. Locock, at the period it was observed.

None of the eminent authors who have now been quoted have made any allusion to Phlegmasia Dolens commencing in the uterine veins; and M. Velpeau, the latest continental writer on this subject, has given it as his opinion, that the affection of the veins is not the primitive disease, but

* Archiv. Gener. de Médecine. Tom. VI. p. 221.

is the consequence of the inflammation and suppuration of the articulations of the pelvis, with which he observed it to be occasionally combined. His words are "je crois n'avancer qu' une consequence assez naturellement tirée des faits, en disant qu' ici le principe du mal etait dans les articulations ; que c'est de la qu'il est parti, et que le reste ne doit être regardé que comme dependante ou consecutif." *

The puriform fluid found within the veins, he supposes to have been introduced into their cavity by absorption, and not to have been the effect of inflammation, nor the cause of those affections of the articulations, as is now known to be the case.

It is due to Mr. Guthrie to mention, that in a paper *On Inflammation of Veins after Amputation*, published in the Medical and Physical Journal for 1826, he suggested the importance of tracing the veins from the common iliac of the affected side down to the uterus, and expressed a suspicion that the disease would be found to originate in that organ.

All the different authors who have treated of Phlegmasia Dolens describe it as commencing, in the great majority of cases, subsequent to the 10th day after parturition, with symptoms of uterine irritation, and constitutional disturbance of a low

* Archiv. Gener. de Médecine. Tom. VI.

nervous character, and with pain and swelling in one extremity only. They have assigned various reasons for these remarkable peculiarities in the period and mode of development of the disease, as pressure of the gravid uterus on the iliac veins during gestation, the change in the distribution of the blood from the sudden removal of this pressure, exposure of the extremity to cold, suppression of the lochial discharge, &c., all of which however, taken singly, or combined, are insufficient to account for the phenomena; and the occurrence of the disease after menstruation and abortion proves that these causes are not necessary for its production. The facts which have now been stated afford a more satisfactory explanation of these phenomena, and shew, that if inflammation be excited in the orifices of the uterine veins, it may spread along these to the iliac and femoral veins, and by the morbid changes induced in them, give rise to all the subsequent symptoms.

The mode of development and extension of the inflammation from the uterine to the iliac and femoral veins of the affected extremity, will be best understood by a concise statement of the principal facts relating to uterine phlebitis, of which Phlegmasia Dolens must now be considered as merely one of the remote consequences.

When the contents of the gravid uterus have been expelled in parturition, the orifices of the

uterine veins, where the placenta had been attached, are left open, and a communication is indirectly established between the venous system, and the atmospheric air, in a manner somewhat analogous to what takes place in amputation, and other extensive wounds. Such a condition of the uterine veins, in consequence of the separation of the placenta, must be favourable to the production of inflammation; and inflammation once excited is seldom limited to their orifices, but extends with greater or less rapidity along the continuous membrane of the uterine veins, to the spermatic or hypogastric veins, and from thence to the vena cava, and its principal branches returning the blood from the lower extremities.

The effects of inflammation in the uterine veins are the formation of adventitious membranes on their inner surface, and the deposition of coagula of lymph or of purulent matter within their cavities.

Coagula of the fibrine of the blood, which often extend a considerable distance into the uterine veins, are formed in their orifices after every labour, and are the principal means employed by nature for the permanent suppression of uterine hemorrhage. These may be distinctly perceived for a long period after delivery, and they have a form and colour different from the coagula produced by inflammation. In opening the body of a patient four weeks after confinement, I observed

distinct traces of these, partially absorbed coagula in the muscular substance of the uterus, at the part where the placenta had adhered.

The inflammation may be limited to the veins, but not unfrequently the muscular tissue of the uterus contiguous to them participates in the inflammation, and becomes of a dark red or blackish brown colour, and so soft in its consistence as to be readily torn with the fingers. The peritoneal covering may be also affected, and the usual consequences of puerperal peritonitis will then ensue.

The veins which return the blood from the uterus, and its appendages may be either wholly or in part inflamed; generally, however, and this is a circumstance in the history of uterine phlebitis deserving particular attention, the inflammation attacks the spermatic veins alone, and for the most part the one only on that side of the uterus to which the placenta has been attached; and it may either confine itself to a small portion of the vessel, or extend throughout its whole course, from the uterus to the vena cava. The usual consequences of inflammation of veins are then apparent, viz. injection and condensation of the cellular membrane in which they are imbedded, thickening, induration, and contraction of their coats, and the deposition of lymph, mixed with pus and coagula of blood within their cavities.

The same is the case with regard to the hypogastric veins, one only being generally affected. These veins are however rarely inflamed in comparison with the spermatic, and this would seem to depend on the latter veins being invariably connected with the placenta, to whatever part of the uterus it may happen to be attached.

But inflammation having once begun, it is liable, as I have before stated, to spread continuously to the veins of the whole uterine system, to those of the ovaria, of the Fallopian tubes and broad ligaments. The vena cava itself does not always escape, the inflammation spreading to it from the iliac or from the spermatic veins. This occurrence seldom takes place to a great extent through the medium of the spermatic, the inflammation usually terminating abruptly at the opening of the spermatic into it on the right side, or of the renal on the left. If it pursue, as it sometimes does, the direction of the kidneys, the substance of these organs, as well as their veins, may be involved in the disease.

Uterine phlebitis appears to result from the mechanical injury inflicted by protracted labour, from the force required for the extraction of the placenta in uterine hemorrhage, from retained portions of placenta undergoing decomposition in the uterus, the application of cold and probably

of contagion, and from various unknown causes operating on the uterine system after delivery.

It is perhaps impossible to determine for the most part, the precise period of its invasion, from the total absence of local pain, and of other symptoms; but it is probable that it most frequently begins soon after delivery, and remains stationary for a time around the orifices of the uterine veins, as phlebitis has been observed to do, where it occurs after venesection. Of this, however, we can have no certain proof, nor can it be admitted to be a general occurrence, from the rapidity with which the inflammation has been found to attack the uterine, spermatic, and renal veins. In one case the disease proved fatal on the evening of the fifth day after labour, and on dissection, all these veins were found disorganized.

It may be stated, as the general result of all the observations hitherto made on uterine phlebitis, that it occurs most frequently from the 10th to the 20th day after parturition, though it has been observed to commence at an earlier, as well as at a much later period.

Where the veins alone are inflamed, the peritoneal and muscular tissues remaining unaffected, there is often either no pain or only a dull pain, with a sense of weight in the region of the uterus, and no other local symptom by which the disease

can be recognized. The uterus too may return to its usual reduced volume or nearly so, and it is only on the accession of the constitutional symptoms, which have been already detailed, that the existence of this insidious and dangerous affection can be determined. If the substance of the uterus be affected, this organ remains above the brim of the pelvis, large, hard, and painful on pressure, as in puerperal peritonitis.

With regard to the lochial discharge, it has sometimes been observed to be fœtid, and puriform, and at other times in a perfectly natural state.

The constitutional symptoms of uterine phlebitis, and the important alterations which take place in the structure of the brain, lungs, and other internal organs, and also in the synovial, serous, and cellular membranes, are often so peculiar and characteristic, that it is the more remarkable this disease should have been so long overlooked by pathological enquirers. Mr. Wilson and Dr. Clarke, it is true, many years ago, observed pus in the veins of the uterus, and the same fact was repeatedly stated by others, but they pointed out merely the lesion of the uterine veins, without having observed the important constitutional effects to which the disease gives rise. In the cases which came under my observation in 1827 and 1828, and the histories of some of which were

read by Mr. Arnott, before this Society, last season, some of the more remarkable of these general effects were distinctly stated, and many others have, since that time, been pointed out by Messrs. Dance * and Cruveilhier †.

Recent experience has induced me to believe that uterine phlebitis is of far more frequent occurrence than has yet been suspected, and that to it must be referred many of the fatal disorders of puerperal women which have usually been comprehended under the vague designation of puerperal fever or peritonitis.

Inflammation of the uterus and its appendages may be considered as essentially the cause of all the destructive febrile affections, which follow parturition; and the various forms they assume, inflammatory, congestive, or typhoid, will probably, in a great measure, be found to depend on the serous, muscular, or venous tissue of the organ having become affected.

In order, still further to illustrate the observations which have now been made on uterine phlebitis, I subjoin an account of several examples of the disease which have come under my own ob-

* Archiv. General. de Médecine. Tom. XIV.

† Anatomie Pathologique, 4tieme Livraison, par M. Cruveilhier, 4to. Paris, 1829.

servation, and in which some striking peculiarities occurred.

Case VII.—Inflammation of the uterine and right spermatic veins, after parturition, with gangrenous inflammation of the lungs and pneumathorax of the right side.

Mrs. Keene, æt. 31, No. 6, Draper's Place, Euston Square.

After a protracted labour of three days, was delivered on the 14th of July, 1829, by artificial aid, of a still-born hydrocephalic child.

Immediately after the expulsion of the child, she was seized with a fit of the most intense shivering, which continued upwards of an hour, notwithstanding the exhibition of the most powerful stimuli, and the exhaustion which followed was so alarming that her life was despaired of. She rallied, however, and passed a quiet night.

On the following and two or three subsequent days, the shivering fits returned at irregular periods, sometimes in a slight form, at others, in that of a severe rigor, followed by a flush of heat, and partial or general perspiration. During this time, the effects consequent to parturition proceeded as usual. The uterus slightly painful on pressure; lochia natural; bowels open; pulse from

133 to 140, and extremely feeble. No complaint of uneasiness, with the exception of a troublesome cough, and hoarseness, with which she has been afflicted during the latter months of pregnancy.

On the 4th day from delivery the secretion of milk appeared, for a short period, and afterwards receded. From this day to the 10th, the following were the symptoms; pulse rapid; skin universally of a dusky yellow colour, and the heat of surface increased; respiration hurried; thirst; tongue dry, but not furred; great prostration of strength; sallow and haggard countenance; restless and sleepless nights; mental faculties undisturbed. The uterus had gradually subsided, and no pressure, however great, either on it, or on the parts in its vicinity, caused pain, except in the right iliac region, where some uneasiness was felt; the flow of lochia natural; bowels regular.

At this period the hacking cough which had so long troubled her, became more frequent, and it was with difficulty she expectorated the ropy mucus which followed it, and which in the day amounted to an ounce.

From the 11th day the respiration became more short and hurried; the pulse more rapid; occasional flushes of heat; thirst; extreme debility; diarrhœa. Pressure over the whole abdomen gave no uneasiness, nor was pain felt in any part of the

chest, though auscultation plainly indicated the existence of disease, particularly on the right side. The patient made no complaint but of weakness and of the cough.

On the 12th, the dyspnœa increased, and she sunk exhausted in the evening.

My friend, Mr. Prout, of Welbeck Street, who had carefully observed the progress of the symptoms, from the period of delivery, was present with me when I opened the body.

Sectio Cadaveris. The uterus was of the size it usually is about the second week after delivery, and exhibited externally no vestige of disease. On laying it open, its internal surface, as well as its muscular tissue, appeared also healthy, and the veins being traced, the right spermatic alone was found greatly enlarged and indurated.

The uterus being removed from the body, for more minute examination, an incision was made into the right superior angle, to which the placenta had been attached, and here its veins were discovered to be empty, and their internal surface of a scarlet colour. On tracing them towards the trunk of the right spermatic vein, they were found to contain a sanious purulent fluid, and were contracted in their diameters, and coated with false membranes. The veins of the right ovarium and

Fallopian tube were all plugged up with firm coagula. The spermatic itself was lined throughout its whole extent with dense membranes of a reddish or of an ash grey colour. Its coats, independent of these membranes, were of extraordinary thickness and firmness, and more like those of a large artery than of a vein. Its whole cavity was contracted; in some parts occupied by a dark coloured fluid, in others, quite obliterated by adhesions, formed between the surfaces of the membranous layers deposited within it. At the termination of the spermatic in the vena cava, its orifice was scarcely large enough to admit a crow quill; traces of inflammation extended beyond this orifice, the vena cava being partially lined from two to three inches above it, with an adventitious membrane, strongly adherent to its coats, which were at this part double their natural thickness. In its passage, upwards, the inflammation had extended a short distance into the right emulgent vein, which, near its orifice, was coated with a pellicle of lymph.

On opening the thorax, a stream of air escaped from the right side; the lungs were collapsed, and upwards of two pints and a half of a red coloured serum were found in the sac of the pleura. The right inferior lobe was coated with lymph, and a portion of the pleura on the anterior surface was destroyed, and a black gangrenous slough exposed in the substance of the lung. The pul-

monary texture around was condensed, and of a deep violet or livid colour.

The left inferior lobe was also partially coated with a thin layer of lymph, and the pleura at one point on the anterior surface was elevated as if by a small hard globular body underneath it. When this was laid open, it appeared to consist of a thick yellowish coloured cyst or capsule, containing a soft black matter like a gangrenous eschar. The substance of the lungs around was unusually dense, and of a dark livid colour.

The appearances of the portions of lung affected with gangrene, and of the right spermatic vein and vena cava now described, are well preserved in the preparations of the parts.

A case of inflammation and suppuration of the left spermatic vein, with gangrene of the lung, after parturition, came under my observation in July, 1828, in the St. James's Infirmary, and it will be found to bear a striking resemblance to the instance I have now related. The history of this interesting case has been recorded by Mr. Arnott *.

Case VIII.—History of a case of inflammation of the spermatic vein and sinuses of the uterus †.

* Medico-Chir. Transact. Vol. XV. p. 102.

† London Medical Gazette, Vol. III. p. 409.

September 21st, 1827. Mrs. Somerville, æt. 40, was delivered of her seventh child on the 18th instant, after a natural labour. Yesterday afternoon she was attacked with a severe rigor, which was speedily followed by acute pain in the hypogastrium and loins, suppression of the lochia, nausea, urgent thirst, and increased heat of skin. In the evening she was delirious and slightly comatose. She is now roused with difficulty, and makes no complaint, but of pain in the left iliac region. The abdomen is unusually distended, but neither hard nor tense; and pressure produces no uneasiness, except between the left ilium and umbilicus. The uterus can still be felt above the brim of the pelvis, large and hard, and very painful on pressure. The milk and lochial discharge are suppressed. The countenance is pale and anxious; respiration hurried; pulse 130, weak and intermitting; tongue white and moist; bowels have been opened by castor oil.

During the 22nd, the stupor continued to increase, the abdomen was much more distended and painful, the respiration more hurried and laborious, and the pulse extremely quick, feeble, and intermitting. She became completely comatose in the evening, and died on the morning of the 23d.

Dissection.—Present, Dr. Auchinleck and Mr. Wade.

The intestines were slightly distended with gas, but there was no trace of inflammation on any part of their peritoneal surface, and no fluid effused into the sac of the peritoneum. On turning aside the intestines, the left spermatic vein, from the uterus to its junction with the left emulgent vein, was seen distended to nearly the size of the vena cava itself. The cellular membrane surrounding it was highly vascular, and adhered closely to its external coat. On laying open the vein, a dark-coloured firm coagulum of blood filled it throughout its whole course, but it did not adhere to its internal surface, except near its termination, where it was lined with a layer of lymph. The coats of the vein were thicker and firmer than usual, and the internal membrane was of a bright scarlet colour, as was that lining the veins of the uterus near the fundus on the left side, the part to which the placenta had been attached. The substance of the uterus in this situation was of a dark livid colour, remarkably soft in its texture, and easily torn with the fingers. The corresponding ovary and Fallopian tube were also very soft and of a dark red colour, and shreds of coagulable lymph adhered loosely to their surface. The left renal vein was in the same state as the spermatic, and the substance of the left kidney was soft and vascular. In other respects, the abdominal viscera were in a healthy state, and nothing unusual was perceived in those of the thorax. The brain was not examined.

The preceding case, with four others of a similarly malignant character, came under my observation in the last two weeks of September, 1827. As all the individuals so attacked had been attended during labour by the same midwife, and as no example of a febrile or inflammatory complaint of a serious nature occurred among the other patients of the extensive Institution under my charge, during the period above mentioned, I was led to conclude, that the disease was propagated by contagion.

Case IX.—Uterine phlebitis fatal on the third day after delivery.

On the 14th September, 1829, I was called to a patient, residing at 7, Little Denmark-street, and was informed by the midwife in attendance, that labour had commenced on the morning of the 12th. The external parts being enormously swollen, the abdomen tender, and the strength completely exhausted, delivery was accomplished by embryotomy. During the 15th, she made no complaint; but on the morning of the 16th, she had a violent rigor, followed by acute pain in the region of the uterus, rapid feeble pulse, and distressing sickness. Sixteen ounces of blood were removed from the arm, which induced faintness, without remission of the pain. Twenty-four leeches were applied to the hypogastrium, and calomel

and antimonial powder administered every three hours.

16th. Delirium in the night. Countenance haggard; pulse 140, and feeble; excessive pain of abdomen, with much tension; incessant vomiting of a dark coloured matter. She sunk on the morning of the 17th.

Dissection.—Both Fallopian tubes were of a dark red colour, and contained pus. The ovaria were much larger and softer than natural, and covered with a thick layer of lymph. The peritoneum covering the posterior part of the uterus was red, but no lymph was effused over its surface, and the intestines, though much distended with gas, presented no trace of inflammation. Twelve ounces of a red serous fluid were effused into the abdominal cavity. The uterus being removed and carefully examined, the greater part of its veins on the left side, where the placenta had been attached, were found gorged with pus. The spermatic and hypogastric veins, at a short distance from the uterus, were healthy, as was the muscular coat of the uterus on the left side.

Case X.—Uterine phlebitis, with ulceration of the articular cartilages, and purulent effusion within the capsular ligament of the right knee-joint.

Mrs. Mayhew, æt. 33, was delivered in the British Lying-in Hospital, on the 2d March, 1829, after an easy and natural labour. The placenta was expelled in a few minutes after the infant, and she appeared to recover in a favourable manner, until the third day, when a discharge of blood from the uterus took place.

From the 6th to the 20th of March, she made no complaint of uneasiness in any region of the body, though the strength rapidly declined. The countenance was of a dusky yellow hue; the heat of the surface slightly increased; the respiration hurried, particularly on bodily exertion, and the pulse was above 180, and feeble; the tongue pale and glossy, with total loss of appetite, though at no period was there nausea or vomiting. The uterus gradually receded into the pelvis, and pressure over the hypogastrium produced no sensible uneasiness. The milk was secreted sparingly. The lochial discharge had a peculiarly offensive smell.

From the 20th to the 28th, when she died, the prostration of strength increased, and the pulse became still more frequent and feeble; the respiration was extremely hurried; and she was incessantly harassed with a hacking cough and the expectoration of a frothy mucus. The abdomen continued soft and flaccid, and not affected by pressure. She, however, during this period, com-

plained of excruciating pains in all the joints of the right superior extremity, and in the right knee-joint, which was observed to be considerably swollen, but not discoloured.

Dissection.—The uterus was found reduced to its usual size a month after delivery, and no morbid appearance was visible on its peritoneal surface, except a slight adhesion between its left margin, near the entrance of the Fallopian tube and the rectum. The uterus being removed from the body, and the cavity laid open, there was found to be a portion of placenta, about the size of a nutmeg, in a putrid state, adhering to its inner surface at the part corresponding with the adhesion between the peritoneal coat and rectum. The substance of the uterus, to the extent of an inch around this, was of a peculiarly dark colour, almost black, and as soft as sponge. On cutting into it, about a tea-spoonful of purulent matter escaped from the veins, and a small additional quantity was pressed out from them. The spermatic and other abdominal veins presented no morbid appearance, and the uterine appendages were healthy.

On opening the capsular ligament of the right knee-joint, where a fluctuation was perceived, about six ounces of thin purulent fluid escaped, and the cartilages of the femur and tibia were extensively eroded. There was no appearance of in-

flammation, however, exterior to the capsular ligament. The right wrist was swollen, but the structure of the joint was not affected. The cellular membrane around it was unusually vascular, and infiltrated with serum.

The patient, whose case I have now related, was under the immediate care of my friend and colleague Dr. Henry Davies, who was present at the dissection, and also Mr. Armstrong of Golden Square *.

The preceding case, and others of a similar description, to which Mr. Arnott and M. Dance have alluded in their valuable essays, induced me to believe, that the violent and destructive affections of the joints, which sometimes occur in puerperal women, were invariably connected with inflammation of the uterine veins; but in the following fatal cases, though these vessels were minutely examined, no morbid alteration of structure in their coats could be detected †.

* See London Med. Gazette. Vol. III. April 25, 1829.

† Dr. Denman had noticed these affections of the joints in puerperal women, for he observes, "There is a peculiarity in this fever, which I believe has not hitherto been observed or mentioned. It is an erysipelatose tumour of a dusky red colour, on the knuckles, wrists, elbows, knees, or ancles, about the size of a shilling, and sometimes larger. This is almost universally a mortal sign, and on the inspection of those who have died with this appearance, the disease has been found to

Case XI.—Gangrenous inflammation of the muscular tissue of the uterus after parturition.

Mrs. Clarke, æt. 35, No. 57, Monmouth Street. On the 12th Sept. 1829 (the seventh day after parturition) she had a severe febrile attack, with intense pain across the forehead, redness of the eyes, increased sensibility to light, and distressing sickness at stomach. The respiration was hurried; the pulse 150 and feeble, and the skin hot. No tenderness in the region of the uterus.

On the 13th these symptoms continued without any remission; and a soft puffy swelling, about the size of a hen's egg, suddenly appeared over the back of the left hand, close to the wrist.

Until the 17th it gradually enlarged, and was accompanied with considerable swelling of the forearm, and the most excruciating pain. A deep incision was made by Mr. Copland Hutchison into the swelling, and an ounce of pus was discharged.

18th Sept. She has been violently delirious in the night; but though now more tranquil, is still incoherent. The countenance is sunk; pulse 150 and feeble; tongue dry and brown; bowels open. There is now considerable tenderness on pressure

have affected principally the uterus or its appendages."—Introduction to Midwifery. P. 570.

of the hypogastrium. An offensive discharge has taken place from the vagina. The swelling in the left hand and forearm is a little diminished.

From the 19th to the 22d, when she died, there was delirium, with repeated severe fits of cold shivering. Pulse 150; tongue dry and brown. The left forearm continued swollen, and of a dusky red colour. The integuments on the back part of the hand were completely destroyed by sloughing, and the extensor tendons laid bare.

Dissection.—The uterus had entirely receded into the pelvis. The peritoneum covering its fundus, and the posterior part of the body, was of a yellowish colour, and so soft as to be torn with the fingers in the removal of the parts from the body. The muscular and internal coats of the uterus, particularly at the superior and posterior parts, were disorganized, being reduced to a soft pulp of a dark red and ash grey colour. The appendages of the uterus and blood-vessels exhibited no trace of disease *.

The cellular membrane of the left forearm was

* The softening of the muscular tissue of the uterus, observed in this case and in Cases VIII. and X., would appear to have resulted from a species of gangrenous inflammation of the part. This malignant form of uterine inflammation has been noticed by Pouteau, Gastellier, Ristelhueber, and Boer, and still more recently by Messrs. Luroth and Danyau, the latter of whom has described eight cases of this dangerous affection

loaded with pus; that over the left wrist and back of the hand was reduced to the state of a dark coloured slough.

*Case XII.**—*Severe affection of the joints after parturition.*

Mrs. Pope, æt. 40, No. 7, Feathers Court, Drury-lane. She was delivered on the 26th Oct. 1827 of her fourteenth child, after an easy labour, and appeared to recover favourably until the 3d of November. Without any obvious cause, she was then suddenly attacked with a severe rigor, which was speedily followed by intense headache, vomiting, general soreness of abdomen, and suppression of the lochia.

Nov. 6th, 1827, (eleventh day after parturition). The symptoms now observed are, great prostration of strength, laborious respiration, with pain at the bottom of the sternum, and frequent hacking cough; pulse 135, and extremely feeble; skin hot and dry; the lips parched; and teeth covered with brown sordes; tongue of a deep red at the edges, dry, chapped, and covered with a yellow furr in the centre. Occasional retching and vomiting; bowels confined; lochia suppressed. The

which he witnessed in the Maternité at Paris in the present year.—Essai sur la Metrite Gangreneuse, par A. C. Danyau. Paris, 1829.

* London Med. Gazette. Vol. III. P. 665.

abdomen is perfectly soft and natural, but feels generally sore on being pressed. She complains of acute lancinating pain in the vertex, and of pain and loss of power to move the left inferior extremity.

On examining the limb, there are several hard lumpy cords found running up on the inside of the thigh, in the direction of the superficial veins, which are very painful to the touch. The integuments over these are not discoloured.

The middle finger of the left hand is also exquisitely painful, and on examination, is perceived to be much swollen around the second joint, where the integuments are of a dusky red colour.

7th. She has been delirious in the night, and is now incoherent, with a peculiar wildness of expression in the countenance. The general debility has greatly increased; the respiration is still more hurried; and the pulse is 140, soft and compressible; the tongue is brown and dry; the muscles of the face and extremities are affected with tremors; the whole surface of the body is covered with a yellow suffusion.

8th. She is in all respects worse; there has been violent delirium during the night; and she is now roused with difficulty. The respiration is still

more oppressed, and the pulse so rapid and feeble as not to be counted. The countenance dejected and deeply suffused, as is the whole surface of the body. The swelling in the joint of the finger has increased, and another painful diffused swelling along the forearm has occurred in the night, with slight discoloration. The whole of the right superior extremity has also become stiff, and so painful, that attempts to move it produce violent pain. The swelling and hardness in the course of the superficial veins of the thigh are diminished.

9th. Complete collapse took place, and she sunk in the course of the afternoon. On the 10th I opened the body, with Mr. Prout of Welbeck-street, who occasionally saw her with me during the progress of the disease.

Dissection.—The intestines were distended with gas; their peritoneal coat had every where a healthy appearance, except a small portion covering the ileum, which was of a bright red colour, though it was not sensibly thickened. The lower part of the omentum, and portion of the mesentery and mesocolon were also more vascular than usual, but no lymph was effused. The mucous membrane of the ileum and great intestines, was remarkably healthy. The left Fallopian tube, and ovarium, was of a deep red colour,

uterus, and its muscular coat, were quite healthy. Permission was not obtained to examine the head, chest, or extremities.

Case XIII.—Inflammation of the saphena veins fatal on the sixteenth day after parturition.

Mrs. Mills, æt. 30, a patient of the British Lying-in Hospital, was delivered of her fourth child on the 7th inst. after a natural labour. During the latter months of gestation she had suffered much from œdema, and a varicose state of the veins of the lower extremities. Two days after her confinement she began to complain of pain in the superficial veins of both legs, and, during the subsequent week a diffuse swelling and erysipelatous redness of the surface took place in the calf of the left leg, and in a less degree in that of the right. This was accompanied with violent febrile disturbance.

I first saw her on the 16th inst. the seventh day after the commencement of the disease. The pulse was 100; tongue red; countenance flushed; skin hot; and respiration hurried, with much jactitation and delirium.

The left lower extremity, now chiefly affected, [illegible] the following appearances;—from the [illegible]kle, on its inner surface, the integu[illegible]ollen, and tense, and in several [illegible] of a dark red colour were

observed over the veins, which being laid open in two places, a considerable quantity of purulent fluid was discharged. Where the swelling and tension were least, the superficial veins could be felt distended like hard cords, as could also the saphena, through its whole course upward from the ham to its junction with the femoral vein. In the course of this vein there was considerable swelling, and the integuments in this situation, as far as the middle of the thigh, were hot, and of a dark red colour.

The right leg was similarly affected, but in a very inferior degree to the left.

17th Oct. Pulse 120. Little marked change in the general symptoms. Left thigh much more swollen, and the saphena vein now painful, indurated, and enlarged. Above the ankle other two abscesses have formed, and been opened. A small abscess has also formed above the knee of the right extremity, which in other respects is improving.

19th. The left extremity, from the ankle to the groin, is on its surface more swollen and painful, and the saphena vein can be felt still more enlarged. The abdomen is tympanitic and exquisitely sensible on the left side when pressed. Pulse 160; subsultus tendinum; urgent thirst; tongue brown and parched; skin hot; countenance flushed and anxious; delirium diminished.

During the succeeding three days, there was a gradual exacerbation of all the symptoms, and she died on the 23d inst., being the 14th day from the commencement of the symptoms.

My friend Dr. Sims was present and assisted me at the dissection on the 24th, and the following is our joint report of the morbid appearances.

The extremity was very much enlarged. The cellular and adipose membranes from Poupart's ligament, along the inner surface of the thigh and leg to the ankle, were indurated, vascular, and infiltrated with a red coloured serous fluid. Several abscesses were observed in the cellular tissue immediately beneath the skin in the calf of the leg, and an extensive collection of purulent fluid had formed in the interstices of the gastrocnemii muscles. The branches of the saphena vein in this situation were converted into solid impervious cords, and the coats of this vein from the knee to its junction with the femoral were thickened and contracted, and in the lower part the cavity was nearly obliterated. The saphena vein was lined with an adventitious membrane of considerable thickness, which was easily separated from the inner coat. Its opening into the femoral vein, though reduced in size, was pervious, and the coats of the femoral from this point to the ham were thickened and contracted. The inner membrane was rugous, and of a deep red colour, but

no deposit of lymph was observable, and its canal was pervious.

The femoral vein above the termination of the saphena, and the whole of the external iliac were thickened, and slightly contracted in their diameters, and lined with a thin coating of lymph. These vessels were pervious, and the common and internal iliac exhibited no sign of disease.

The intestines were inflamed, and on the ascending colon there was a small part in a state of sphacelus.

Inflammation of the Veins of the Uterus and Phlegmasia Dolens have been usually considered as diseases peculiar to the puerperal state, but the following cases will shew that in malignant affections of the uterus, they may occur and give rise to the same symptoms which they manifest in puerperal women.

Case XIV.—Inflammation of the uterine veins, with carcinomatous ulceration of the os and cervix uteri.

A lady who had been suffering for some time from cancer of the os uteri, was seized on the 9th of May last with frequent vomiting, diarrhœa, and unremitting severe pain in the uterus. She be-

came extremely sallow and emaciated, and there was a constant discharge of a dark coloured watery fluid from the vagina. These symptoms continued until the 27th, when aphthous ulceration of the mouth took place; and a few days after, retention of urine. The emaciation, debility, and other symptoms went on increasing till the end of June, when she died. The body was examined by Mr. Griffith of Tottenham-court Road, who found all the viscera, except the uterus, in a healthy condition.

It is to the kindness of my friend, Dr. Ley, who was consulted by the patient, that I am indebted for the history of the case, and for the opportunity of exhibiting the preparation to the Society.

The anterior lip of the os uteri, and the greater part of its internal surface, and of the cervix, were disorganized by the softening of cancer; and a small ragged fungoid growth was hanging from these into the vagina, the mucous membrane of the upper portion of which to a small extent was ulcerated.

The uterine branches of the left hypogastric vein were distended with dense coagula of lymph, and their internal surface was of a bright red colour. The left spermatic vein to its division two inches and a half from the uterus, was coated with

a thin false membrane, and also completely plugged up with a coagulum of lymph, in the centre of which was a yellow pultaceous matter. The veins running along the side of the body of the uterus, and forming the communication between the spermatics and hypogastrics of the left side, were in the same condition, and distended like hard cords.

The veins of the right side of the uterus were similarly affected, but in a much slighter degree.

Case XV.—Inflammation of the left iliac and femoral veins, with phagedenic ulceration of the uterus.

On the 27th of July, 1829, I was invited by my friend, Dr. Girdwood, of Paddington, to be present at the examination of the body of a woman, aged 60, who had died two days before of a malignant disease of the uterus of several years' duration.

Five weeks before her decease, symptoms of Phlegmasia Dolens had appeared in the left inferior extremity. She complained of great pain in the thigh, and the limb had become swollen to nearly double the size of the other, without any discolouration of the integuments.

On opening the abdomen, the peritoneum covering the intestines and liver was found to be

severely inflamed with an effusion of three pints of sero-purulent fluid into the abdominal cavity. The mouth, cervix, and a great part of the body of the womb, were destroyed by phagedenic ulceration, and extensive openings formed into the bladder and rectum. On the left side, between the remaining portion of the uterus and the pelvis, to the brim of which it firmly adhered, was a spongy cancerous mass, enclosing within it the branches and trunks of the hypogastric vein and artery, and a considerable portion of the common and external iliac veins. When cut into, it presented a spongy texture, and a thick whitish purulent fluid escaped, as if from numerous cells, but which were subsequently ascertained to be cavities of veins. A portion of the common and external iliac veins was lost in the removal of the parts from the body. What remained of the common iliac was reduced to a slender tube, which was partially coated on the inner surface with an adventitious membrane of a black colour.

The commencement of the external iliac was also contracted, so as to be impervious, and lined with a dark coloured false membrane. The common superficial and deep femoral veins were all plugged up with firm red coagula, the coats thickened, and the inner surface lined with adherent false membranes.

The cellular texture of the limb was loaded with

serum, but in other respects it was healthy, as were the other tissues.

Dr. Willan has stated, on the authority of Dr. John Sims, "that the scirrhus or cancer of the uterus, which produces an offensive discharge from the vagina, is sometimes attended with an œdema, similar to that in puerperal cases", and other authors have alluded to the same occurrence *.

From the last case I have related, and from the following, which I have found recorded in the Sixth Volume of the Archives Generales de Médecine, it would appear that the disease is produced precisely in the same manner as it is after parturition, by an extension of inflammation from the hypogastric to the common and external iliac veins.

A woman, aged 50, died of cancer of the uterus, in the wards of La Charité. She had ascites and infiltration of the inferior extremities. On dissection, the principal veins of the lower extremities were found greatly distended with layers of coagulum, like those of an aneurismal sac, adhering intimately to their inner coats, which were red and thickened. The external iliac, hypogastric, and common iliac veins, and the vena cava inferior, to near the diaphragm, were found in the same condition.

* Willan's Reports of the Diseases of London, p. 325.

The manner in which cases of cancer of the uterus terminate, varies extremely in different individuals, some surviving many months the destruction of a great part of the body of the uterus and the adjacent structures, while others die at an early period of the disease, merely from a superficial erosion of the mouth or neck of the womb. This difference may depend, in some cases, on the greater or less degree of susceptibility of the constitution to the local injury; but it seems highly probable, from the facts now related, that death sometimes results from the production of inflammation of the veins of the uterus.

In a man who died of cancer of the rectum in St. Bartholomew's Hospital, Mr. Lawrence observed the iliac veins inflamed and obstructed; and Laennec has stated, that it is not uncommon to find the veins in the neighbourhood of a cancerous breast filled with pus, either pure or mixed with blood, sometimes fluid, at other times more or less inspissated, and occasionally of the degree of consistence of an atheromatous tumour *. It is evident, therefore, that inflammation may be excited in the great veins of the pelvis, in both sexes, by diseases of the neighbouring organs, and that this may be propagated to the principal veins of the lower extremities.

* Laennec, Forbes's Translation, 2d Ed. p. 652.

Such is a faithful relation of the facts, which have led me to conclude, that inflammation of the uterine veins is a disease of frequent occurrence, not only subsequent to parturition, but in the malignant organic affections of the uterus, and that the extension of this inflammation along the hypogastric to the iliac and femoral veins, is the cause of all the phenomena observed in Phlegmasia Dolens.

APPENDIX.

THE following interesting cases, which refer to the subject of the foregoing paper, have been kindly communicated to me since it was presented to the Society.

"MY DEAR SIR,

"The following are the particulars of the case which I narrated at the meeting of the Medico-Chirurgical Society, when the second part of your interesting paper on Uterine Phlebitis was read. It is of importance, in connexion with your paper, from the similarity of the symptoms to those which attend inflammation of the veins, and from the rare occurrence of inflammation of the substance of the uterus, in comparison with that

of its surfaces, and also from the extent to which the pus had filled the absorbents, without any inflammation of the veins.

"T. S., aged about 30, was admitted into St. George's Hospital, July 1, 1829, under my care, in consequence of sloughing of the skin to some extent over a diseased bursa of the patella. The bursa was removed, which was a quarter of an inch thick, and a granulating surface established without more constitutional disturbance than had been excited by the sloughing, which was never very great, and she was going to leave the hospital in order to lie in, which event she expected in two or three weeks.

"On the 14th, however, she was brought to bed in the hospital, the child being ill grown, and dying soon afterwards.

"On the 16th, symptoms of puerperal peritonitis of a low character made their appearance, which was fatal on the 18th; the pain, I understand, was completely relieved by bleeding, but she never rallied after the commencement of the attack.

"Some puriform lymph was found in the pelvis, but with no increase of vascularity in the peritoneum. A considerable quantity of the same kind of fluid was situated round the whole of the lower

part of the uterus beneath the peritoneum, and in the cellular membrane among the fibres of the uterus, but none had been effused at the fundus.

"In the broad ligaments some fluid was also effused, and on each side numerous large absorbent vessels were discovered passing up with the spermatic vessels to the receptaculum chyli, which was unusually distended. All these vessels and the reservoir itself were quite filled with fluid pus, but that in the receptaculum was mixed with lymph so as to be more solid; the vessels themselves were firmer and thicker than usual. The thoracic duct above this part was quite healthy, and contained only transparent lymph. The spermatic and uterine veins were all healthy. The uterus was scarcely contracted at all, and the internal surface of the lower half was soft and shreddy, and in a state of slough. The upper part, where no pus was found externally, was also healthy, or nearly so, on its inner surface. The rest of the viscera were healthy.

"I am, my dear Sir,

"Faithfully yours,

"CÆSAR HAWKINS."

"31, Half-Moon Street, Oct. 31st."

Note.—By A. COPLAND HUTCHISON, ESQ., F.R.S.

"Phlegmasia Dolens cannot be supposed always to originate in the veins of the uterus, for we have occasionally examples of it in the male sex. The valuable contribution to the history and true pathology of this disease, by my friend Dr. Robert Lee, now before the Medical and Chirurgical Society, has induced me to offer a case in the shape of a Note to his interesting paper, and which I think deserving of record, chiefly on account of a gentleman being the subject of attack, which so very rarely occurs, and from the accident which occasioned it being, comparatively, of so slight a nature.

"Mr. B., lately returned from the Isle of France, where he had resided upwards of twenty years, received a blow upon his right shin, immediately over a branch of the saphena vein, by a small piece of timber accidentally falling upon it. The scar is very slight, though the injury and its results appear to have been severe, and the patient states that the accident was followed by considerable swelling and inflammation all over the limb, and that the abraded surface was very long in healing. Mr. B. says he first felt pain in the direction of the upper third of the saphena before it actually dips to unite with the femoral vein. The whole leg and thigh soon became enlarged and inflamed, the former partly edematous; and

about twelve months ago

although the patient states the disease to be slowly on the decline, yet the enlargement of the thigh and leg still continues, and he has pain from the groin to the heel and sole of the foot, principally in the direction of the branches of the saphena, with a slight blush of redness over the fore part of the leg, where the original injury was received; but while the member is kept in the horizontal position he is nearly free from pain.

"I have traced the upper portion of the saphena vein, and find it to be a complete ligamentous cord for eight or ten inches, but the femoral vein seems to me to have hitherto escaped the diseased action. The patient has no pain or uneasiness within the pelvis, and his general health is good. It should be stated, however, that the testis of that side is slightly enlarged, but not indurated. Sir Gilbert Blane and Dr. Lee saw the patient with me in consultation three days ago."

"Duchess Street, Portland Place.
"October 19, 1829."

EXPLANATION OF THE PLATES.

PLATE IV.

To illustrate Dr. Hodgkin's paper on the Anatomical Characters of some Adventitious Structures. see p. 265 etc.

Fig. 1. A compound serous cyst, in which the contained cysts are of the form described as the standard. The tendency to a partial protrusion or hernia is also shewn.

Fig. 2. A compound serous cyst of that variety, in which the contained order have small attachments, and consequently assume the form of pedunculated cysts and filaments.

Fig. 3. A compound serous cyst, in which those of the secondary, or contained order, have broad bases.

Fig. 4. A tumour, consisting of a cyst reflected over numerous pedunculated bodies, by which its cavity is nearly filled.

Fig. 5. A cyst of the same description as that in the preceding figure, but in which the pedunculated bodies only partially fill the cavity, and leave a space occupied by fluid.

Fig. 6. A cyst enclosing but one pedunculated body, which exhibits indications of an inferior order contained within it.

Fig. 7. Section of a malignant ulcer.

PLATE V.

To illustrate Dr. Hodgkin's paper on the Anatomical Characters of some Adventitious Structures. See p. 265, etc.

Fig. 1. Section of a scirrhous tumour, from a female breast: removed by John Morgan, Esq. In that part towards the nipple is seen a portion of the adventitious structure, which, having protruded through an opening in the original containing cyst, grew rapidly, and was of a softer texture than the rest of the tumour. A few small cysts are seen in the surrounding adipose membrane.

Fig. 2. Section of an osteo-sarcomatous tumour, growing from the os femoris: it was amputated by Charles Aston Key, Esq. The distended periosteum covers the greater part of the tumour, which was firm and mixed with bony matter. A portion of the adventitious structure is seen protruding through an opening in the periosteum. This part of the tumour was soft and medullary. The surrounding cellular membrane and muscles were infiltrated by a similar material.

PLATE VI,

Exhibits the morbid appearances in the hypogastric, left common and external iliac, and femoral veins, in the second case of Phlegmasia Dolens, related by Dr. Lee, in his paper on Inflammation of the Veins of the Uterus, &c.

A. A portion of the vena cava.
B. Right common iliac vein.
C. Right hypogastric vein.
D. Left ditto.
E. Left common iliac vein.
F. External iliac ditto.
G. Femoral vein.

PLATE VII,

Shews the morbid appearances in the inferior portion of the vena cava, hypogastric, iliac, and femoral veins, in Dr. Lee's third case of Phlegmasia Dolens.

A. Vena cava.
B. Right common iliac vein.
C. External iliac ditto.
D. Right hypogastric vein.
E. Left ditto.
F. Left common iliac vein.
G. Left external iliac vein.

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INDEX

TO

VOLUME FIFTEENTH.

A. Page

ADVENTITIOUS Structures, on the anatomical characters of some..... 265

Analysis of a quantity of fluid drawn off from a hydrocele of some years' standing 154

Aneurism by anastomosis of the forehead, a case of, treated by the application of ligatures 177

Appendix to Dr. Robert Lee's first paper on the pathology of phlegmasia dolens 145

———— Dr. Lee's second paper on the same..... 432

Arnott, J. M., a pathological inquiry into the secondary effects of inflammation of the veins..... 1

B.

Bostock, Dr., analysis of a quantity of fluid drawn off from a hydrocele of some years' standing... 154

Brodie, B. C., an account of a case of aneurism by anastomosis of the forehead treated by the application of ligatures..... 177

E.

Elliotson, Dr. J., on the use of the subcarbonate of iron in tetanus..... 161

F.

Fracture of the thigh bone without violence, cases of.... 186

H.

Page

Hawkins, C., in appendix to Dr. Lee's second paper on phlegmasia dolens 432
Hodgkin, Dr., on the anatomical characters of some adventitious structures 265
Hutchison, A. C., case of phlegmasia dolens in the male... 435

I.

Inflammation of the veins, a pathological inquiry into the secondary effects of 1
Inflammation of the veins of the uterus..... 369
Iron, subcarbonate of, on the use of in tetanus..... 161

L.

Lee, Dr. R., a contribution to the pathology of phlegmasia dolens 132
———— appendix, containing cases and observations for the illustration of the pathology of phlegmasia dolens..... 145
———— pathological researches on inflammation of the veins of the uterus with additional observations on phlegmasia dolens..... 369
Lithotomy, observations on the statement made by Dr. Douglass of Cheselden's improved lateral operation of lithotomy 339
Local diseases termed malignant, observations on the, Part I..... 195
Part II..... 230

P.

Phlegmasia Dolens, a contribution to the pathology of.... 132
———— appendix to 145
———— additional observationson 426
———— appendix to 432

S.

Salter, T., two cases of fracture of the thigh bone taking place without any violence 186

T.

Page

Thigh-bone, two cases of fracture of the, taking place without any violence, in which a diseased state of the bones appears to have been the predisposing cause of the fracture, and concurring with cancer in the breasts in both patients.. 186

Travers, B., observations on the local diseases termed malignant, Part I.. 195

Part II..... 230

Y.

Yelloly, Dr., observations on the statement made by Dr. Douglass of Cheselden's improved lateral operation of lithotomy, in a letter to Sir A. Cooper, Bart..... 339

THE END.

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Fig 1

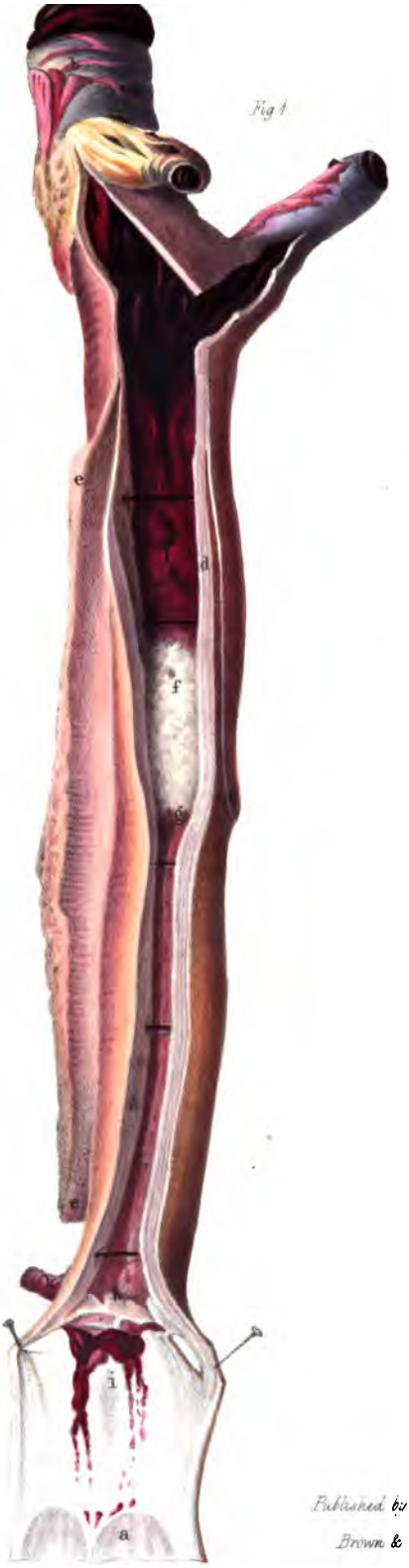

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Fig. 1.

Fig. 2.

See p. 265.

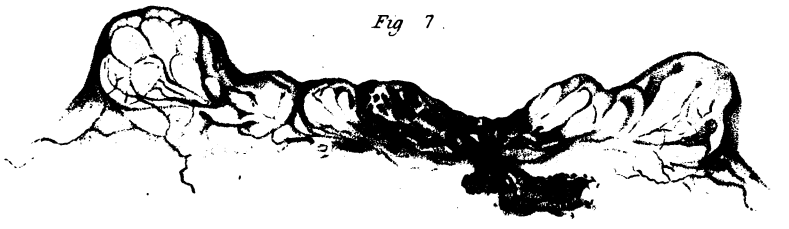
Fig. 3.

Fig. 4

Fig. 5

Fig. 6

Fig. 7.



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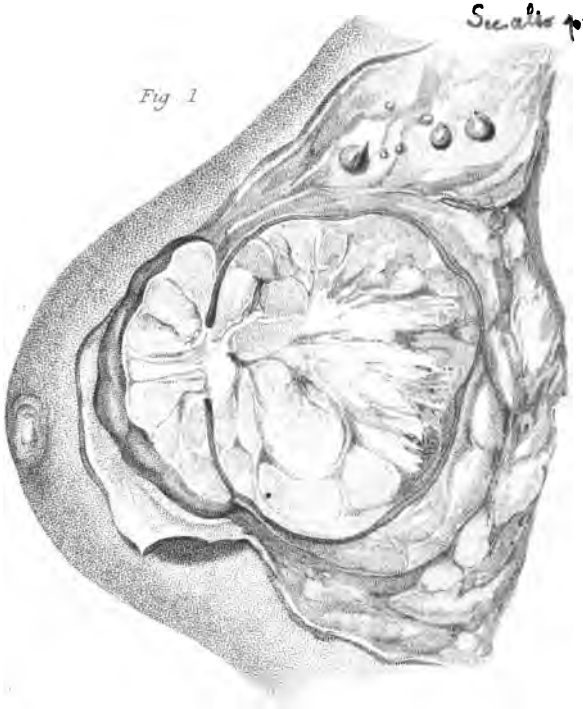

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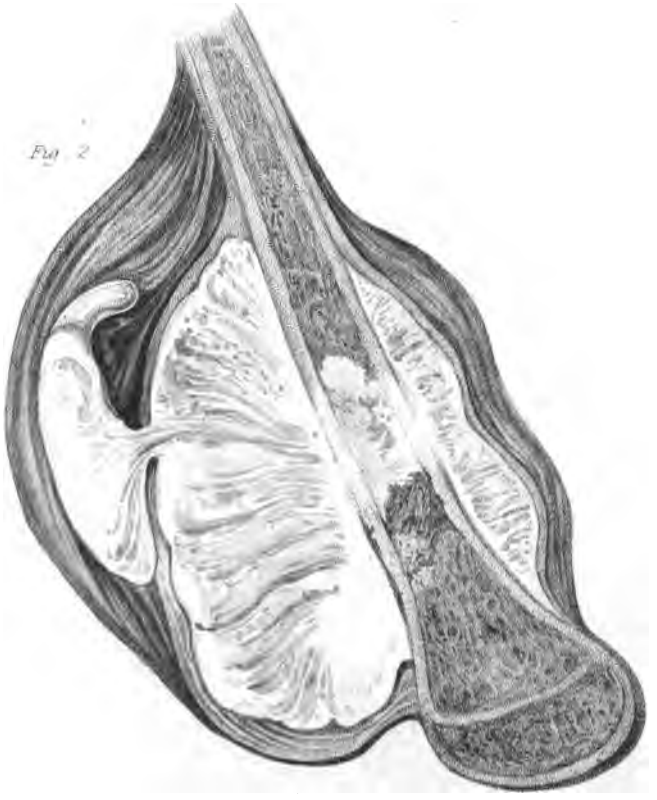

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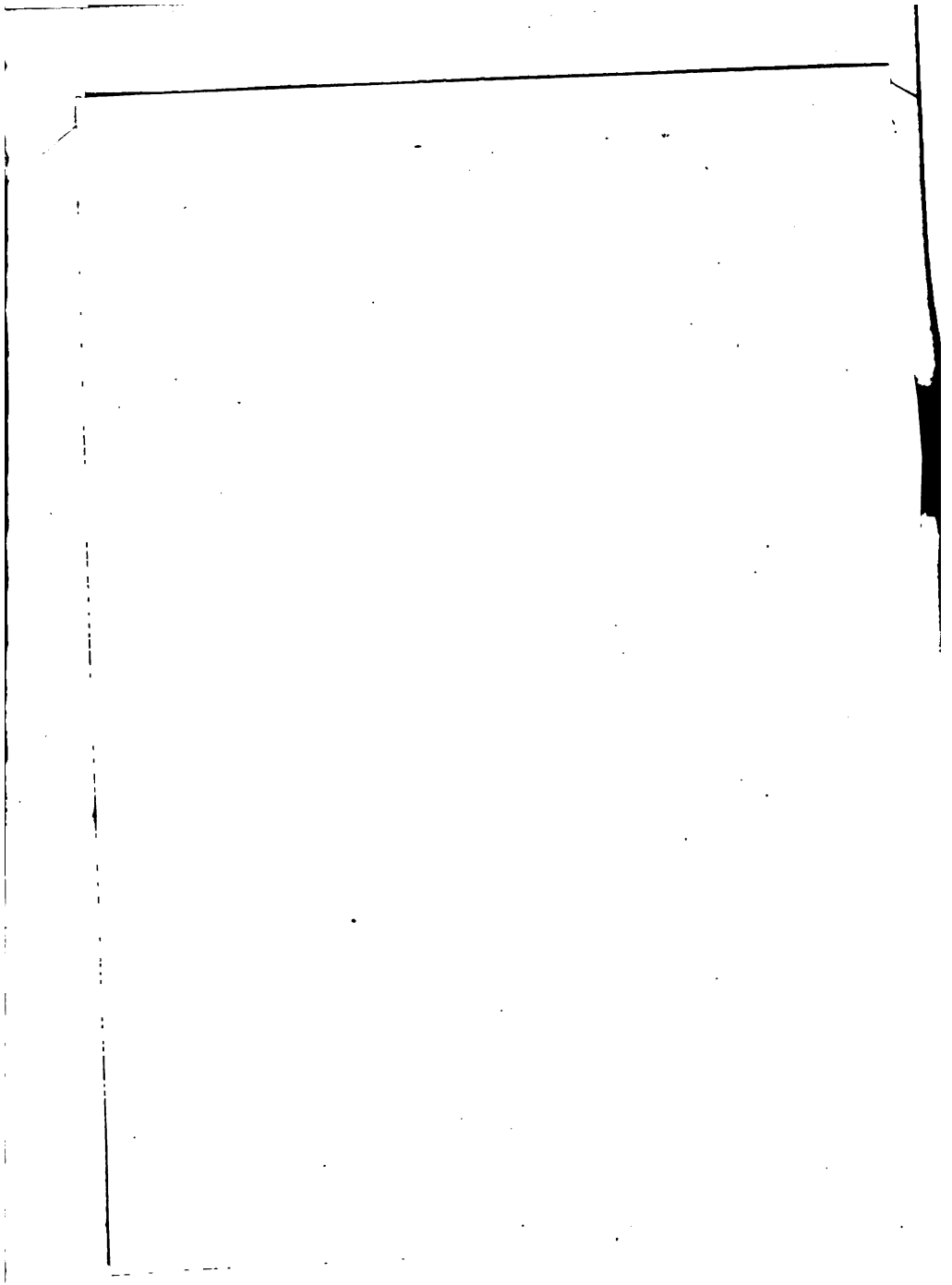

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